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ABSTRACT

This survey is aimed at examining the manner in which school and university authorities have responded to the need for greater numbers of teachers occasioned by the continuous growth in school enrollments in the 22 member countries of the Organisation for Economic Cooperation and Development. The first part of the study provides a statistical comparison of the growth in numbers of pupils and teachers and examines various means used to attract and keep more teachers in the educational system. In this section are also described the indicators of teacher shortages, such as relaxation of qualification requirements, more intensive utilization of existing staff, and shortages in particular subject areas. In the second part of the study, the author describes technical supply and demand. A number of conclusions are drawn regarding the teacher training, recruitment, and utilization relationship of the future. Related documents are ED 057 470, EA 004 323, EA 004 420-21, and EA 004 423-425. (Author/JH)

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Background Study No. 3

TEACHING STAFF AND EDUCATIONAL EXPANSION IN MEMBER COUNTRIES SINCE 1950

The attached report, written by Pierre Laderrière, is one of a series of Background Studies prepared by the Secretariat for the Conference on Policies for Educational Growth.

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TEACHING STAFF AND EDUCATIONAL EXPANSION IN MEMBER COUNTRIES SINCE 1950

Summary

Despite a sharp increase in teacher demand between 1950 and 1965, the educational authorities managed in almost all cases to find teachers to put in front of the pupils. This meant a considerable effort on the part of Member countries, since several factors combined to slow down the intake of recruits. The government departments concerned had no control over some of these factors (population trends for example).

The school authorities took up the challenge in two ways: by immediately taking emergency measures to hold the position and at the same time starting to draw up middle and long-term policies. The emergency measures consisted of more intensive utilisation of teachers (within the normal functioning of the existing system) and by provisionally lowering the level of the various qualifications officially required.

The main objective of the longer-term measures was to increase the inflow into the teaching profession of people who had acquired the qualifications traditionally required for teachers. Particular emphasis was laid on the socio-economic aspects of the teachers' status so as to attract and retain higher education graduates in the face of competition from other branches of activity.

The persistence of the various symptoms of shortage in some countries in recent years, and the dissatisfaction of many education authorities with attempts to improve the quality of teaching mainly by improving the ratio of teachers to pupils, seem to indicate that policy measures taken did not always produce the results hoped for by their authors. In fact, educational progress could be hampered by the rise in personnel costs (since increased participation in education affects the upper reaches of the educational system) or could mean making too heavy a claim on the total supply of graduates from the universities.

The failure to integrate the various measures, and the fact that it was sometimes necessary to keep in force measures which were only intended as provisional, stemmed from the inadequacy if not almost total lack of forecasting machinery in many countries. Statistics both of stocks and flows of teachers are rare and, when they do exist, are of little use because they are not sufficiently detailed. At the crossroads of

quantity and quality, teachers should have been the subject of research and development programmes in regard to training, recruitment and utilisation. But in the rare cases when they were done such studies were badly co-ordinated, although the need for them became even more urgent with the implementation of teaching reforms.

Contrary to what generally happens in other branches of activity, the lack of qualified manpower and/or its cost did not lead to a systematic study of the possibilities of a better division of labour as part of the effort to develop new educational techniques and methods. But, in any case, teachers would have been reluctant to accept such a change because the content of their initial training and the slowness in recognising the need for continuing training left them unprepared for it.

In the absence of reliable planning machinery based on research, the education authorities did not grasp the opportunity thus offered them to apply new training methods to the increased numbers of young student-teachers they were recruiting expressly to provide mass education. The increased rate of recruitment has rejuvenated the teaching body, and these new teachers are due to spend a long time in the educational systems in some countries. Without programmes for systematic continuing training little progress is to be hoped for.

In the years to come, many teachers will be recruited not only in primary and secondary education (the latter will tend to become universal) and higher education, but also in pre-school and special education (for socio-cultural reasons) and above all adult (or continuing) education. The efforts of part of the existing body of teachers will have to be diverted to train the new influx (both as regards initial and continuing training), to counsel and direct teaching staffs, and to undertake research. Apart from deriving greater impetus from the educational environment of the society of which they are a part, the schools would be assured of being able to find the qualified people they need for their staffs if the educational systems function as democratically and as efficiently as possible, especially since changes in teachers' tasks (and training) should make it possible to improve their career-profiles.

To sum up, it seems that the pressure of events has prevented educational authorities from taking anything but a purely quantitative point of view. But with this approach they have never been able to reconsider the use currently made of teachers' qualifications, and what such qualifications should really be. The problem remains untouched, and it must be hoped that the breathing space that some countries are now beginning to experience will be put to good use in a serious attempt to deal with it.

TEACHING STAFF AND EDUCATIONAL EXPANSION IN MEMBER COUNTRIES SINCE 1950

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TEACHING STAFF NUMBERS AND EDUCATIONAL EXPANSION SINCE 1950

GENERAL INTRODUCTION

1. The object of this survey is to examine how school and university authorities have responded to the need for greater numbers of teachers of various categories occasioned by the continuous growth in numbers of pupils and students since 1950.

2. The purpose of this introduction is to describe in greater detail the aims of the survey and the methods used to carry it out, and to emphasize more particularly the inadequacies of the data available.

A. Aims and layout of the study

3. Bearing in mind the "educational explosion" which has occurred in Member countries since 1950 and which is described in study No. 1, the question naturally arises whether enough human resources - i.e. teachers - could be recruited to meet the challenge. Put in this way, the problem amounts to confronting a supply with a demand in purely quantitative terms. This will be done in the first part of the study, where the various means used to attract and keep more teachers in the educational system will be examined in turn.

4. Nevertheless, as will be made clear in the first part of the study, the allocation of teachers to jobs is not governed solely by quantitative considerations. Teaching is at the "crossroads" of quantitative and qualitative problems within the educational system. The educational reforms which have been introduced in many Member countries over the last ten years, and whose form and content are described in study No. 6, have created new conditions for training and recruitment which have to be taken into account. If this is not done, some of the fundamental objectives of these reforms may not be achieved.

5. The ways in which the teaching body is deployed and utilised will also have to change, both in the light of the new functions required of teachers and in order to rationalise the functioning of school and university establishments for which the cost in staff is high. This is demonstrated in Study No. 2, which analyses expenditure on education.

6. There is also the question of the possible repercussions of allowing the educational system to claim too high a proportion of the total output of university graduates. This raises the difficult problem of sharing out highly qualified manpower among the various sectors which need it.

7. The second part of the study will therefore deal with the inter-relationships between the training, recruitment and utilisation of teachers. There will be far more questions than answers - proof in itself of the paucity of information and study in this field.

B. The methods used

8. This study could not have been undertaken if the Committee for Scientific and Technical Personnel had not included in its programme a study on the "Supply of and Demand for Teachers in Primary and Secondary Education" /STP(69)11/(1). The information given in that study, some of which is quoted in this paper, is taken in almost all cases from national studies(2) or statistics expressly checked by Member countries.

9. In order to cover the major part of the "human resources" allocated to the educational system as a whole, the Secretariat undertook, while it was engaged in preparatory work for the Policy Conference on Educational Growth, a special survey of trends in numbers of teachers in higher education. This is given as an Appendix to this study. Almost all Member countries have checked and supplemented the Secretariat's statistics, which have made it possible to study for the first time at international level the purely numerical aspect of trends for this category of teacher.

10. As far as possible an attempt has been made to give some information about other teachers not normally covered by the categories mentioned above i.e. those providing pre-school and special education. Owing to the lack of a precise definition and adequate statistics, it has not been possible to give figures for teachers in adult education.

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(1) This study, which has been approved by the C.S.T.P., will be published in the next few months by the Organisation under the title: "The Training, Recruitment and Utilisation of Teachers in Primary and Secondary Education".

(2) Seven volumes have been published under the title "Etude sur les enseignants/Study on teachers" O.C.D.E./O.E.C.D. - Direction des Affaires Scientifiques/Directorate for Scientific Affairs. They cover Austria, Greece, Sweden, (1968); Netherlands, Portugal, (1968); Denmark, Italy, Luxembourg, (1968); Switzerland, Yugoslavia, (1968); France, Ireland, (1969); Germany, Belgium, the United Kingdom (1969); and Statistiques/Statistical data (1969).

11. The differences in the characteristics typical of each of the levels or types of education considered, the varying conditions under which the surveys mentioned above were carried out, and the uneven quality of the statistics for the various teacher categories, have made it impossible to give a uniform presentation for the educational system as a whole of trends from 1950 to 1965, the period covered by the survey on educational expansion. This would have been the most intellectually satisfying approach, but it would have involved making estimates and approximations which could not be reconciled with the complexity of the problems under consideration.

C. The lack of statistics

12. A thorough quantitative analysis of trends in numbers of teachers is only possible if there already exist at national level basic statistics possessing enough consistency over a fairly long period to indicate significant trends. For many countries these conditions are far from being fulfilled. Obviously any attempt at a systematic comparison between countries is even more difficult, given the lack of uniform data.

13. Generally speaking, the statistics on teachers appear to be less reliable than those on numbers of pupils and students or even on amounts of expenditure. It is therefore almost impossible to make meaningful calculations of pupil/teacher ratios or analyses of unit costs. But the greatest handicap is the almost total lack of flow statistics. Although necessary, statistics on stocks - unless they are very detailed - do not show changes that may affect teacher supply either in quantity or quality.

14. The failure to forecast the demand for teachers and to plan for their recruitment noted in some countries at the beginning of the period studied is not entirely due to errors at policy-making level. To implement a systematic recruitment policy requires a statistical machinery that did not exist at that time and - it must be admitted - still does not exist everywhere even now.

15. The situation in this field obviously varies from country to country. But, generally speaking, it is clear that the quality of statistics varies with the teacher categories considered.

16. Systematic records are kept of the numbers of primary school teachers. Those of pre-school or special school teachers are not always given separately from primary school teachers, and it is seldom possible to obtain a complete picture in this respect because of the great number of authorities responsible.

17. Full-time teachers in general secondary education are also systematically recorded, but breakdowns according to subjects taught are less frequent. Part-time teachers are not always systematically recorded, and apart from a few notable exceptions the full-time equivalence of their hours of service is not known. The situation is even more serious as regards technical education at secondary level for which many part-time teachers are employed, while the greater decentralisation of instruction provided in such establishments seems to have the effect in some countries of preventing any regular recording of statistics even for full-time teachers. Furthermore, some records do not distinguish between full-time and part-time teachers.

18. For similar reasons, statistics on teachers in higher education have to be treated with caution. In the introduction to a study on trends in numbers of teachers in higher education, provided as an Appendix to this paper, the main weaknesses are underlined. Data on teachers in non-university type higher education are particularly poor. The technical and occupational training provided in this type of education, which is sometimes described as post-secondary, seems to be the responsibility of too many different authorities for it to be possible so far in many countries to have a clear idea of the body of teachers engaged in it.

19. How much longer can this state of affairs be tolerated at a time when questions are being asked about policies for the systematic diversification of higher education as a whole? More generally, what hope is there of working out meaningful recruitment policies without first having a better knowledge of the origins and composition of the teaching body and the reasons why teachers remain in or leave the profession? The fact that one is compelled to ask these basic questions underlines once more the limitations from which this study has suffered.

PART I

TRENDS IN TOTAL NUMBERS OF TEACHERS

Introduction

20. It would have been intellectually more satisfying to compare the demand for and supply of teachers for the period 1950 to 1965, to measure the resulting surplus or deficit and explain the reasons for it. Unfortunately, with the data available it is not possible to make such a comparison and analyse the results. The absence in almost all countries of recruitment plans at the beginning of the period, the poor quality of the statistics and the variety of ways in which governments can define or describe imbalances between supply and demand, all impose very narrow limits on possibilities of interpreting results.

21. On the basis of a limited number of statistics on the stock of teachers it is not possible to deduce that at a given time the supply of teachers was insufficient to meet the demand, and to put a definite value on the deficit that then existed. Deficit is always a relative concept, and depends on the definition it is given.

22. It is possible in theory to calculate the full-time equivalent of overtime put in by regular teachers, and of teaching done by retired teachers or those without the requisite qualifications for teaching (as defined by official regulations in the various countries), and deduce from this one part of the deficit. But it would only measure one part of the deficit since, to measure the total deficit, account has to be taken of a basic factor which can be handled very flexibly by the school authorities: the size of classes, and something which grosso modo arises indirectly from it - the pupil/teacher ratio.

23. While the three indicators mentioned above can easily be calculated because they are defined by compulsory regulations, the size of classes is not fixed "ne varietur". In general, the authorities lay down a maximum size for classes, which implies the creation of a second class when this limit is exceeded. Very often a deliberate policy for improving this ratio takes the form of setting an average target. If it is observed that the ratio has deteriorated between two given dates (i.e. that average class size has increased), this may mean that the authorities have brought this about deliberately, thereby in effect reducing the demand for teachers by comparison with the original situation.

24. The combination of the lack of statistics and the stress put on recruitment policy rather than on other policies has also caused the concept of deficit to be interpreted differently from one Member country to another. Some have thought of it in terms of the full-time equivalent of extra teaching load, or the teaching hours done by retired or non-qualified teachers, others in terms of the deterioration of the pupil/classroom ratio. Sometimes, too, some countries have measured the shortage in terms of a combination of two or three of these factors. In the context of the very high demand for teachers between 1950 and 1960 there were naturally few examples of exact calculations of teacher surpluses.

25. The above considerations indicate that it is better to abandon the idea of making a strict numerical comparison between supply and demand and, particularly for the period in question, the notion of deficit. It seemed preferable to lump all the available information together under the heading of shortage, since the different devices that have been used by Member countries to try to remedy at any given time one (or several) component(s) of the deficit, and which might have been used to measure the deficit in part or as a whole, will be considered here as indicators of that shortage. They will at the same time give a picture of the measures that harassed authorities have been reluctantly obliged to take to cope with the mass of pupils arriving at the various types of school and university establishments.

26. The plan of this first part will therefore reflect the pragmatic approach necessary to cover all the various aspects of this subject. The first chapter will compare the growth in pupil numbers with that of teachers. The second chapter will show how the demand for teachers was satisfied by various means, which are in themselves indicators of the shortage that many Member countries have had to meet. The third chapter will amplify the description of the range of measures used by highlighting the main features of teacher supply for that period. The fourth and final chapter will give some indication of anticipated trends in the demand for teachers over the next few years.

CHAPTER 1

Comparison of growth in number of pupils and teachers

27. For statistical reasons due to the fact that the records of the various categories of teacher do not always correspond to the records of pupils and students whom they in fact teach, the figures for pupils that were used in the studies referred to in paragraphs 8 and 9, and quoted again here, do not exactly correspond to those given in Study No. 1. Nevertheless the broad trends in population (including internal migrations) and compulsory education described in Study No. 1 should be kept in mind because they explain to a considerable extent the growth in teacher requirements at the various levels of the educational system.

28. Moreover, various institutional measures aimed either at ensuring that compulsory education was respected (Mediterranean Members of the O.E.C.D. in particular), or at extending the duration of compulsory education (to nine years in the most advanced O.E.C.D. countries), or again to make sweeping changes in the structure and content of education at all levels, have all contributed to an increased demand for teachers over the period from 1950 to 1975. The main features of these changes, the effects of which will be felt for a long time to come, are described in Study No. 6 which deals with the adaptation of structures.

29. The lack of standardized statistics for the period as a whole has made it impossible to give an estimate of overall growth in teacher numbers. The main numerical gaps which are emphasized from time to time in this paper make it necessary to deal separately with each of the main kinds of education considered.

A. Pre-school, special and primary education

30. Although available statistics are far from sufficient to cover pre-school, special and primary education in Member countries, it has been possible for these types of education to compare the growth in the number of pupils and teachers between 1950 and 1965. These trends can almost always be assessed for 1955 and 1960, thus making it possible to determine when shortages were most acute.

(1) Pre-school and special education

31. Figures available at present for these categories (Table 1) do not cover more than half of the Member countries for pre-school education and not more than one-third for special

TABLE 1

COMPARISON OF GROWTH OF NUMBERS OF PUPILS AND TEACHERS IN PRE-PRIMARY EDUCATION AND IN SPECIAL EDUCATION FOR VARIOUS OECD COUNTRIES BETWEEN 1950 AND 1965

(1950 = 100)

	Pre-primary education (1)				Special education (2)			
	Pupils		Teachers		Pupils		Teachers	
	abs.	index	abs.	index	abs.	index	abs.	index
Germany								
1950					111.569	100	3.[illegible]	[illegible]
1955					118.650	105	3.[illegible]	147
1960					141.257	125	7.317	[illegible]
1965					191.480	178	9.771	270
Austria (3)								
1950	63.604	100	[illegible].186	100	9.728	100	701	100
1955	66.989	105	2.811	[illegible]	17.256	177	1.[illegible]09	177
1960	79.175	125	4.347	199	22.386	230	1.825	260
1965	-	-	-	-	22.294	229	1.948	278
Belgium (4)								
1950	297.700	100	8.307	100				
1955	334.000	112	9.265	115				
1960	392.000	132	10.592	129				
1965	443.000	149	15.[illegible]	188				
Spain (5)								
1955	448.9[illegible]0	100	9.110	100				
1960	547.044	122	12.[illegible]33	135				
1965	670.827	146	15.[illegible]91	169				
France (6)								
1950	914.000	100	35.[illegible]43	100				
1955	1.073.000	118	41.571	120				
1960	1.171.308	128	56.[illegible]50	160				
1965	1.506.000	165	68.960	196				
Greece								
1955	47.[illegible]72	100	812	100				
1960	68.[illegible]47	145	1.223	151				
1965	51.[illegible]58	185	1.555	192				
Italy (7.8)								
1950	933.[illegible]91	100	24.150	100	14.972	100	1.494	100
1955	1.068.114	115	28.984	120	19.628	131	1.904	127
1960	1.154.094	124	31.441	130	28.024	187	3.[illegible]86	220
1965	1.399.000	142	39.820	165	47.024	314	4.847	324
Japan								
1950	224.653	100	9.445	100	36.033	100	3.118	100
1955	643.683	287	24.983	265	-	-	-	-
1960	742.[illegible]37	330	35.867	380	35.778	99	6.[illegible]25	[illegible]06
1965	1.137.7[illegible]	506	50.339	533	44.940	124	8.994	288
Luxembourg								
1950	3.[illegible]95	100	101	100				
1955	4.146	132	115	114				
1960	4.7[illegible]9	150	128	127				
1965	5.[illegible]42	166	191	189				
Norway								
1950					1.717	100	471	100
1955					-	-	-	-
1960					2.221	129	381	141
1965					2.737	159	589	217
Netherlands								
1950	341.484	100	8.288	100	32.914	100	2.162	100
1955	370.[illegible]92	108	10.052	121	43.532	132	3.[illegible]19	140
1960	397.845	117	11.535	139	54.561	166	3.873	179
1965	457.130	134	13.557	164	64.515	196	4.708	218
U.K.: England & Wales								
1950					49.054	100	3.490	100
1955					59.175	121	4.469	129
1960					66.863	136	6.0[illegible]	173
1965					78.[illegible]65	156	7.[illegible]97	212
Northern Ireland								
1950					711	100	51	100
1955					1.[illegible]72	195	94	178
1960					2.[illegible]53	342	171	[illegible]35
1965					6.180	869	389	763
Sweden								
1955	7.[illegible]05	100	680	100				
1960	[illegible].504	172	1.950	285				
1965	72.[illegible]45	[illegible]07	2.482	365				
Turkey								
1950	1.730	100	71	100				
1955	2.[illegible]73	146	82	115				
1960	2.[illegible]70	155	104	146				
1965 (9)	3.018	171	103	145				

Sources : Except where indicated otherwise in the Notes, all the statistics were taken from the UNESCO Statistical Yearbook and when no other figures were available they were taken from the UNESCO publication, "World Survey of Education", Vols. II, III and IV.

Notes to Table 1

(1) The definition of pre-primary education used to establish the UNESCO statistics : "...all education preceding the first level, e.g. kindergartens, nursery schools as well as infant classes attached to schools at higher levels. Nursery play centres, etc. (caring for children 1-3 years old) may be included in some cases. Figures on teachers refer, in general, to both full-time and part-time teachers. Unless otherwise stated, data refer to both public and private schools; however they should be considered as a minimum indication of the amount of pre-primary education since complete data are not available in all cases."

(2) The definition of special education used to establish the UNESCO statistics : "...all types of special education provided in special schools, homes or other institutions, or in special classes attached to regular schools, for children who 'deviate so far physically, mentally, emotionally or socially from the so-called normal pupils that the standard curriculum is not suitable for their educational needs' (Carter V. Good, ed., Dictionary of Education, New York, McGraw-Hill Book Co. Inc.). In most cases the data presented in this table cover special education at the first level for physically handicapped children. However, depending on the facilities existing in the reporting countries, they include one or more other types of special education, e.g. for children who are mentally handicapped, socially maladjusted, backward, exceptionally gifted, etc. In a number of countries, special education is provided also at the second level, both general and vocational. Unless otherwise stated, the data refer both to public and private institutions and to both full-time and part-time education."

(3) Including pupils in special classes attached to primary schools.

(4) Source for 1950/51, 1954/55 and 1959/60 : C.D. Hoogh : "Problèmes économiques de l'enseignement" CEPSPT, Bruxelles (1963); source for 1965/66 : Annuaire statistique de l'enseignement (Belgique).

(5) Source : Study on Teachers "Statistical Data" (OECD document, 1969), except for the number of teachers in 1955 (9,140) taken from the UNESCO publications mentioned above.

(6) Only public education is given in "Annuaires statistiques de la France" and "Informations statistiques" (Service Central des Statistiques et de la Conjoncture - Ministère de l'Education Nationale); the number of pupils and the number of school-teachers in 1960/61 and 1954/55 has been obtained by deducting from the total number of school-teachers (Annuaire statistique de la France) teachers of elementary classes and continuation courses, the number of which was assessed in Study on Teachers "France-Ireland", OECD document, 1969.

(7) 1964.

(8) Special education : not including special classes attached to ordinary schools.

(9) Children of boatmen not taken into account.

(10) Estimate.

education. In fact, statistics for some countries are full of gaps and sudden jumps in the numerical series, due perhaps to variations in the census of different types of schools. It was therefore thought preferable not to include these figures.

32. Table 1 shows that for pre-school education, in the countries covered, the teaching body grew faster than pupils between 1950 to 1965, except in Turkey. However, during these 15 years, Belgium between 1955 and 1960, Japan between 1950 and 1955, and Luxembourg between 1950 and 1960, had to meet a greater increase in pupils than teachers.

33. In special education, except in Northern Ireland where the increase in teachers has always been lower than that of pupils, and in Austria where pupils and teachers have increased at the same rate, the number of teachers has increased more rapidly than that of pupils. However Japan between 1950 and 1955 experienced the opposite trend.

34. Excluding Greece and Sweden, for which there are no statistics for 1950, it is clear that pre-school teachers have always increased more rapidly (except in Turkey) than those in primary education (Table 2), thus reflecting the low level of development of this category in 1950, and the strong pressure in favour of its expansion which occurs for various socio-cultural reasons.

35. In special education, the growth of which can be explained at least in part by the same reasons, similar trends are found.

36. Comparing once more the trends given in Tables 1 and 2, and bearing in mind that teachers for pre-school and primary education are recruited from the same sources, it seems that the smallest growth in teacher numbers by comparison with pupils, which was pointed out in paragraphs 32 and 33 above, followed the trends noted in primary education for Turkey and Belgium; but the opposite was true for all the other cases given.

37. In view of the weakness of the statistics available, the above paragraphs will be the only reference to these two types of education in this paper.

(2) Primary education

38. Of the 19 countries covered in Table 2, only three (France, Iceland, Turkey) had not, by the end of the period in question, achieved a growth index for full-time primary school teachers higher than that for pupils. Slightly less than half the remaining 16 countries, with pupil numbers expanding less rapidly than teaching staff between 1950 to 1965, nevertheless experienced periods between 1950 and 1960 when the opposite was true. The population bulge in some countries was certainly one of the main causes of the latter tendency.

TABLE 2

Comparative growth of the number of pupils and full-time teaching staff in primary education 1950 to 1965 (1950 = 100)

Growth of teaching staff		1950	1955	1960	1965
Under pupil enrolments					
From 1950 to 1955					
England and Wales	pupils	100	115	104	105
	teachers	100	114	115	116
Denmark(1)	pupils	100(2)	120(3)	124(4)	125(5)
	teachers	100(2)	119(3)	147(4)	193(5)
Ireland	pupils	100	108	108	112
	teachers	100	103	108	112
Switzerland	pupils	100(2)	117(3)	121(4)	-
	teachers	100(2)	113(3)	122(4)	-
From 1950 to 1960					
Belgium	pupils	100	112	118	122
	teachers	100	106	113	124
Norway(6)	pupils	100	131	140	131
	teachers	100	120	135	142
Netherlands	pupils	100	121	124	120
	teachers	100	116	123	128
From 1950 to 1965					
France	pupils	100	118(7)	141(8)	136
	teachers	100(10)	104(7)	122(8)	135(9)
Iceland	pupils	100	126	154	168
	teachers	100	116	144	166
Turkey	pupils	100	123	177	243
	teachers	100	117	170	235
From 1955 to 1960					
Spain	pupils	100	103	121(8)	125
	teachers	100	110	113(8)	128

Growth of teaching staff		1950	1955	1960	1965
Over pupil enrolments					
Austria(11)	pupils	100(2)	89	87	93
	teachers	100(2)	97	95	102
Scotland(13)	pupils(12)	100	110	107	110
	teachers	100	114	116	119
United States	pupils	100(14)	117	132	145
	teachers	100(14)	124	146	168
Northern Ireland(15)	pupils	100	109	103	102
	teachers	100	109	109	113
Italy	pupils	100	97	93	92
	teachers	100	106	118	122
Japan	pupils	100	110	113	87
	teachers	100	113	116	113
Luxembourg(16)	pupils	100	99	106	119
	teachers	100	104	113	124
Portugal(17)	pupils	100	131	141	141(9)
	teachers	100	141	164	176(9)
Yugoslavia(18)	pupils	100(19)	112(3)	143(8)	165(9)
	teachers	100(19)	153(3)	199(8)	242(9)
Germany(20)	pupils	100	75	79	86
	teachers	100	101	104	120

Source: Training, recruitment and utilisation of teachers in primary and secondary education /STP(69)11/.

Notes:

(1) Primary and lower secondary under "Folkeskola".

(2) 1951.

(3) 1956.

(4) 1961.

(5) 1966.

(6) Including continuation schools.

(7) 1954-1955.

(8) 1959-1960.

(9) 1964-1965.

(10) Evaluation of teaching staff in private education based on teacher/pupil ratio of 1-35 recorded in 1954-55.

(11) Including upper primary and special education.

(12) Including pupils in 2 to 4 age-group and 12 years and over in primary education.

(13) Including pre-primary education.

(14) 1949-1950.

(15) Including pupils under five years old and over eleven years old in primary education.

(16) Including upper primary education (and continuation schools in 1965).

(17) Public only.

(18) Eight-year schools.

(19) 1952.

(20) Source: Federal Bureau of Statistics; not including the City-States.

(3) Secondary education

39. Table 3 deals only with general secondary education. Statistics on technical education are scarce and inconsistent, and it is impossible to analyse trends for this kind of education. Although fewer for general secondary than for primary education, the statistics available show that the situation has been worse in the former than in the latter. Less than half of the countries covered have experienced a more rapid growth in full-time teachers than pupils. A great many of them had recorded the opposite trend between 1950 and 1960.

40. But these figures must be treated with caution. It has not been possible to include the full-time equivalent of part-time teachers. Staff employed as "assistant" or "supply" teachers cannot be included in the statistics.

41. Trends in pupil numbers (Study No. 1) caused the growth in the number of full-time teachers, as Table 4 shows, to be much more substantial, in general secondary education (and a fortiori in secondary education as a whole) than in primary education during the period considered. For an equal number of pupils, secondary education tends to be a larger "consumer" of teachers than primary education.

B. Higher education

42. The poor statistical coverage for this level of education has made it impossible to compare, as was done for primary and secondary education, the growth in teaching staff with that of students for the four years generally considered above. It is therefore not possible to compare systematically what happened in higher education with what has happened at other levels of education. For higher education, a comparison has been made between the annual average growth rate, for periods available, of teacher and student numbers, and synoptic tables summing up trends in university education have been included to show how far the number of teachers exceeds, falls short of or equals the increase in students.

(1) Non-university higher education

43. It was impossible to obtain a similar overall picture of non-university higher education. Only one-third of Member countries were able to provide some statistics, and these do not in general cover the whole of this type of education (see the study in the Appendix for country studies on Germany, Canada, Greece, Japan, United Kingdom, Turkey and Yugoslavia). Out of six countries (Japan not being included in this category) offering

TABLE 3

Comparative growth of the number of pupils and full-time teaching staff in general secondary education

1950 to 1965 (1950 = 100)

Growth of teaching staff		1950	1955	1960	1965
Under pupil enrolment					
From 1950 to 1955					
Germany (1)	pupils	100	142	142	172
	teachers	100	137	160	189
Austria	pupils	100	129	135	146
	teachers	100	119	137	159
Denmark (2)	pupils	100(3)	115(4)	119(5)	149(6)
	teachers	100(3)	113(4)	133(5)	198(6)
Japan	pupils (7)	100	112	112	113
	teachers (8)	100	109	115	131
From 1950 to 1960					
Switzerland (9)	pupils	100(3)	134(4)	152(5)	-
	teachers (10)	100(3)	119(4)	145(5)	-
From 1950 to 1965					
United States	pupils	100(11)	146	204	263
	teachers	100(11)	125	167	225
France (12)	pupils	100	122 (13)	188 (14)	258 (15)
	teachers	100	119 (13)	155 (14)	252 (15)
Norway	pupils	100	131	247	425
	teachers	100	126	159	249
Netherlands (U.L.O.) (16)	pupils	100	124	196	218
	teachers	100	116	176	210
Netherlands (V.G.L.O.) (17)	pupils	100	292	331	300
	teachers	100	252	269	267
Portugal (18)	pupils	100	141	210	272 (15)
	teachers	100	122	179	234 (15)
Turkey	pupils	100	184	419	611
	teachers	100	134	251	324
From 1955 to 1965					
France (18) (short)	pupils	100	111 (13)	205 (14)	386 (15)
	teachers	100	126 (13)	202 (14)	357 (15)
Luxembourg (18)	pupils	100	127	179	210
	teachers	100	132	157	183

Growth of teaching staff		1950	1955	1960	1965
Over pupil enrolments					
England and Wales (19)	pupils	100	112	155	159
	teachers	100	117	163	180
Scotland (20)	pupils	100	100	124	122
	teachers	100	119	139	155
Northern Ireland (21)	pupils	100	130	244	309
	teachers	100	131	247	351
Iceland	pupils	100	111	167	261
	teachers	100	113	190	330

Source: Same as Table 2

Notes:

(1) Source: Federal Bureau of Statistics; not including the City States.

(2) Gymnasia (upper cycle) and any connected lower-cycle classes.

(3) 1951.

(4) 1956.

(5) 1961.

(6) 1966.

(7) Including part-time pupils of upper cycle.

(8) Including full-time teachers of part-time courses in upper cycle.

(9) Including schools of business and administration (at intermediate level).

(10) Not including auxiliary and domestic science teachers.

(11) 1949-50.

(12) Public schools only (including technical lycées).

(13) 1954-1955.

(14) 1959-1960.

(15) 1964-1965.

(16) Short secondary modern.

(17) Upper primary.

(18) Public education only.

(19) Including technical secondary.

(20) Public and grant-aided.

(21) Including intermediate technical schools.

TABLE 4

Growth in full-time teaching staff for primary and general secondary education between 1950 and 1965 (per cent)

Country \ Level of Education	Primary	General Secondary
Austria	2	59
France	35	152
Germany	20	89
Iceland	66	210
Japan	13	31
Luxembourg	24	83
Norway	42	149
Portugal	76	134
Turkey	135	224
United States	68	125

Source: Tables 2 and 3.

normal education at this level, in all except the United Kingdom students have increased more rapidly than teachers. For other types of education, a more rapid growth in the number of teachers of technology was noted in Germany and Yugoslavia. But for Social Sciences and Medicine in Yugoslavia, and for non-university education as a whole in Japan and Turkey, students have increased more rapdily than teachers.

(2) University higher education

44. The brief outline of the position for two-thirds of Member countries in Table 5 seems to show that, despite diverging trends according to the period studied, a good number of countries experienced more rapid growth in teaching staffs than

Table 5

Trend in numbers of teaching staff in relation to that of student enrolments for all university education (by country and by period)

+ = > + 1 % - = < - 1 % o = - 1% < o < + 1 %	I 1950-55	II 1955-60	III 1960-65	IV 1955-65
Germany (II 1952-60) (IV 1952-66)		-	+	o
Austria		-	+	-
Belgium		+	-	-
Canada (II 1956-60) (III 1960-67) (IV 1956-67)		o	o	o
Denmark	+	o	+	+
Spain (I 1951-55) (II 1955-59)	+	o	o	
U.S.A.		o	-	o
France (IV 1957-65)			+	+
Ireland (III 1960-64) (IV 1955-64)	+	-	+	o
Italy	+	+	-	o
Japan	+	o	-	-
Norway (II 1956-60) (IV 1956-65)		-	-	-
U.K. : Great Britain (III 1960-64) (IV 1955-64)		o	+	o
Northern Ireland (I 1951-55) (III and IV as for Great Britain)	+	-	+	-
Turkey	-	-	+	o
Yugoslavia	-	o	+	+

Source : Appendix to Study No. 3 : Quantitative trend of the teaching body in higher education.

students between 1960 and 1965 (9 out of 15). In spite of this, between 1955 and 1965 teacher numbers expanded faster than those of students in only three countries, while seven other countries succeeded in maintaining staffing ratios more or less unchanged.

45. Only in university education is it possible to distinguish between teachers of different levels. They have been divided in the Appendix into three groups: senior, middle and lower levels. Taking the period 1955 to 1965 only (Table 6), and keeping to the same summarised presentation (the annual growth rate in student numbers for each of the three teacher categories adopted) it is clear that in almost all countries covered, teachers of higher status have never increased as quickly as students. Still in terms of this table, overall ratios of middle and lower level teachers would seem to have followed similar trends, but when individual countries are taken the trend sometimes goes in the opposite direction.

46. Reservations expressed earlier about the statistics available mean that great caution is necessary in interpreting these figures. Nevertheless, bearing in mind the extent of pupil and student increases, the recruitment effort in Member countries has been enormous in an economic situation which, as will be shown in a third chapter, was sometimes far from favourable. The few figures given above suggest it has not always been possible to adjust teacher supply to demand. Some attempt therefore is called for to measure the shortages observed.

Table 6

Trend in numbers of teaching staff, distinguished by status, in relation to the number of students for all university education between 1955 and 1965

+ = > + 1 % - = < - 1 % o = + 1 % > o > - 1 %	SL	ML	JL
Germany (1952-60) (a)	-	o	+
Austria	-	-	-
Belgium	-	+	+
Canada (1956-67)	-	+	-
Denmark	-	-	+
France (1957-65)	-	+	+
Greece	-	-	
U.S.A.		-	o
Italy	-	-	o
Japan	o	o	-
Norway (1956-65)	-	-	-
United Kingdom :			
Great Britain (1955-64)	-	o	o
Northern Ireland (1955-64)	-	o	o
Switzerland	-	-	
Yugoslavia (b)		+	o

Source : Same as Table 5.

Notes : (a) West Berlin included throughout.

(b) For the U.S.A. and Yugoslavia, the teachers of higher and intermediate status are always given together.

CHAPTER 2

Indicators of the shortage of teachers

47. Faced with the increasing demand for teachers, school and university authorities have been quick to take defensive measures similar in many ways to those other branches of activity are obliged to take when faced with a manpower shortage. The various palliatives resorted to can be regarded as indicators of the shortage they are intended to remedy. The following chapter will deal with longer-term policies implemented by countries to combat the shortage and neutralise its most adverse effects.

48. The various indicators of shortage can be analysed in one of two ways. Either existing teaching staff has been used more intensively, or the rules as to the qualifications required of teachers have been relaxed.

A. More intensive utilisation of existing staff

49. As was said earlier, it has been possible to vary the pupil/classroom ratio which is one of the main policy parameters determining teacher demand. Teachers have also been invited to do overtime and to stay on over the legal retiring age.

(1) Changing the size of classes

50. The absence of precise data on trends in the size of classes means that analysis has to be done in terms of pupil/teacher ratios. In primary education this ratio is significant to the extent that, in almost all countries, primary school teachers are each responsible for one particular class and are moreover employed full-time. The way in which secondary and higher education is organised means that calculations of pupil/teacher ratios lose much of their significance. They can only indicate the order of magnitude of the trend occurring in the country concerned. Comparisons between countries would not have much meaning since the actual amount of teaching done, teachers' duties and the number of teaching hours that pupils receive from their teachers would not be known.

Primary education

51. Table 7 shows, for all Member countries except Canada, how pupil teacher/ratios in primary education have evolved over the four main dates considered. The ratio deteriorated in slightly more than one-third of the countries (eight) between 1950 and 1955, after which the trend was reversed, except in France between 1955 and 1960, and in Luxembourg between 1960 and 1965. Only France, Iceland and Turkey do not seem in 1965 to have regained the ratio recorded 15 years earlier.

TABLE 7

Trend of pupil/teacher ratios in public primary education

(or public and private)

	1950	1955	1960	1965
Worsening of the ratio between 1950 and 1955				
Belgium (public+private)	23.7	25.2	24.5	22.9
Spain (1) (public)	34.4(2)	40.0(3)	36.7	-
(private)	33.5(2)	36.1(3)	41.3	-
Ireland (public)	33.7	35.1	33.7	33.7
Iceland (4) (public)	27.0	29.4	28.9	27.4
Norway (4) (public)	28.7	31.2	29.8	26.5
Netherlands (public + private)	35.0	35.6(5)	34.7(6)	31.1
United Kingdom:				
England & Wales (7)(public)	30.0	31.4	29.2	28.3
(8)(private)	-	12.6	12.5	12.6
Northern Ireland(public)	32.5	32.6	30.6	29.4
Turkey (public)	45.0	47.7	47.6	46.9
(Private)	-	17.9	19.2	19.5
• from 1950 to 1960				
France (public)	25.2	29.4	29.5	26.5(9)
• from 1960 to 1965				
Luxembourg (public)(10)	27.8	26.6	26.2	26.7
Improvement of the ratio				
Germany (public + private)(11)	48.0	36.0	36.0	33.0
Austria (12)(public + private)	30.0	27.7	27.6	27.4
Denmark (public)(13)	32.0(2)	31.0	26.0	21.0
(private)(13)	36.0(2)	31.0	32.0	26.0
United States (public) (14)	32.8(15)	30.2	28.4	27.5
(private) (14)	35.6(15)	40.4	38.1	34.8
Greece (public)	-	51.0	40.0	38.5(16)
(private)	-	31.0	30.0	28.0(16)
Italy (public)	28.6	26.1	22.9	21.4
(private)	29.0	25.4	21.0	23.0
(4)(public+private)	36.5	36.0	34.9	28.3
Portugal (public)	40.6	37.7	34.7	32.6
(private)	-	-	23.4	25.7
Yugoslavia (public)	-	-	36.0(18)	31.0(9)
Sweden (public)	-	23.6	22.2	19.0
Switzerland (public)	31.0(2)	31.0(3)	29.0(17)	-

Source: Same as Table 2.

Notes:

(1) Source : MRP Report, Table 22.

(2) 1951.

(3) 1956.

(4) Not including part-time teachers.

(5) 1954.

(6) 1959.

(7) Full-time teachers only in 1950, then full-time teachers plus full-time equivalent for part-time teachers.

(8) Independent schools recognised as "efficient"; the trend for such schools combining primary with secondary courses is as follows: 1955 : 14.4; 1960 : 14.5; 1965 : 13.8.

(9) 1964.

(10) Primary and upper primary.

(11) Source: Federal Bureau of Statistics; full-time teachers only in 1950 and 1955, then full-time teachers plus full-time equivalent for part-time teachers.

(12) Primary and upper primary, not including teachers of arts and crafts and religious subjects.

(13) Primary and lower secondary, number of pupils per teacher graduating from training colleges; 1966 for 1965.

(14) Sources: Projections of Educational Statistics to 1975/76, United States Department of Health, Education and Welfare, Office of Education, for 1955 to 1965.

(15) 1949/50.

(16) 1963.

(17) 1961.

(18) 1958.

TABLE 8

Trend of pupil/teacher ratios (1) in public and private general secondary education in various Member countries

	1950	1955	1960	1965
United States (2)				
Public	-	20.9	21.7	21.4
Private	-	15.7	18.3	17.5
France				
Modern short (public)	18.5	-	-	21.4
Greece				
Public	-	36	40	34 (3)
Private	-	-	20 (4)	-
Netherlands				
Modern short (public & private)	25.6	27.4	28.6	26.5
Portugal				
Public	-	-	22.2	23.0 (5)
Private	-	-	18.1	19.9 (5)
United Kingdom:				
England & Wales				
Public	-	20.6	20.8	18.7
Private grant-aided(grammar)(6)	-	18.1	18.0	16.9 (7)
Independent (8)	-	11.9	12.0	11.3
Northern Ireland (public)				
Intermediate	20.6	24.8	24.0	20.4
Grammer School	18.9	18.5	19.1	18.7

Source: Same as Table 2.

(1) The teaching staff taken into consideration are those teaching full-time, except for England and Wales where the ratio takes into account the full-time equivalent of part-time teachers.

(2) All secondary education, source : Projections of Educational statistics to 1975-1976, US Department of Health, Education and Welfare - Office of Education; Washington.

(3) 1963.

(4) Estimate : MRP Report for Greece.

(5) 1964.

(6) Direct Grant Grammar.

(7) Lower Secondary : 21.2 ; upper secondary : 16.3.

(8) Recognissd "efficient".

52. Both these statistics and the more informative figures about size of classes are averages that can conceal considerable differences in actual class sizes. In Germany between 1961 and 1965 the number of pupils per class fell from 37.1 to 35.1. But in this average of 35, 65 per cent of all pupils were in classes numbering more than 35.

53. Besides the improvement in the pupil/teacher ratios shown in Table 7, therefore, particular attention must be paid to the systematic efforts to reduce the number of over-size classes and the average size of classes. In England and Wales between 1955 and 1965 the percentage of over-size classes (the prescribed norm is 40 pupils) fell from 29.4 to 12.4. In Sweden, in an effort to promote the individualisation of teaching postulated in the reform, the average size of classes between 1960 and 1965 fell from 23 to 20.5 pupils in the lower department of comprehensive school and from 28 to 23.7 pupils in the middle department, these two departments corresponding to the primary cycle.

54. It is therefore mainly in the first third of the period in question that teaching staff was used more intensively. Although the average figures of pupils per class may conceal the effort that is still to be made in this field, this shortage indicator seems to show that the situation has improved over the last ten years in primary education.

Secondary education

55. The absence of statistics makes it impossible to use this ratio with the same precision in secondary education. Moreover, the way technical education is organised, with its various options and different categories of specialist teachers, does not lend itself to calculating pupil/teacher ratios, given the present dearth of statistics. The figures given below therefore will relate only to general secondary education.

56. As far as the size of classes is concerned, in the Netherlands the average deteriorated between 1951 and 1960, rising from 20 pupils per class to 22.6. In England and Wales the percentage of over-size classes (the prescribed norm being 30) rose from 49.4 in 1955 to 53.5 in 1960. Table 8, drawn up for some countries and for full-time teachers only, confirms the above figures: pupil/teacher ratios generally deteriorated between 1955 and 1960.

57. Although the trend was reversed between 1960 and 1965, the figures for many countries in 1965 were still below those for the base year. In the Netherlands, the average number of pupils per class had risen again to 22 in 1965, as against 20 in 1955. In Germany the average remained constant between 1960 and 1965.

58. From about 1960 onwards some countries made a great effort to improve the situation. In England and Wales between 1960 and 1965 the percentage of over-size classes dropped from 53.5 to 39.8 (49.4 in 1955), and in Sweden over the same period the number of pupils per class in the upper department of the comprehensive school (equivalent to the first cycle of secondary education) decreased from 28 to 25.

59. It is therefore mainly in the middle third of the period in question that the authorities had to increase the number of pupils per class, and grosso modo per teacher, in secondary education. It seems that it was more difficult to improve the situation in the following period than was the case for primary education. The average size of classes and pupil/teacher ratios not having the same significance at this level of education, care must be taken not to jump to conclusions, since the deterioration of the average size of classes can also be due to the lack of available equipment, while the lack of statistics on part-time teachers can falsify the actual figures for pupil/teacher ratios. Other indicators of shortage will throw more light on the repercussions of expansion in pupil numbers in secondary education, which was more rapid than that in primary education.

60. Tables 7 and 8 show that in private education the pupil/teacher ratio seems consistently better than in general secondary State education, while for primary education this ratio is not so good as that recorded for State education in roughly half of the countries covered. But statistics for private education must be regarded with even greater caution than those for State education.

61. For reasons similar to those given for technical education in paragraph 55, a summary table of the student/lecturer ratio has not been drawn up for higher education. Each of the national studies in the Appendix to this document gives examples of calculations of this type. But at international level, Table 5, which compares the annual average growth rates for teacher and student numbers, seemed more informative. It should be remembered that in university education between 1955 and 1965, three out of 15 countries seemed to have improved staffing ratios, seven to have kept them more or less constant, while in the remaining five staffing ratios deteriorated.

(2) Overtime

62. In many Member countries the school and university authorities made extensive use of voluntary overtime by existing staff to cope with increased need. Unfortunately, the weight of the additional hours taught (measured in full-time equivalent) as an element in the total teaching requirement is rarely known. The question of full-time equivalence is usually decided by headmasters or local authorities, and statistics are therefore rare.

63. In Denmark the proportion of overtime in total demand was 12.5 per cent in primary and lower secondary education for 1966 (10.5 per cent in 1961) and 29.5 per cent in specialised subjects in secondary schools in 1966 (full-time teachers only). In Sweden in Autumn 1960, the proportion of overtime was 7 per cent for general secondary education as a whole.

64. In university education in Greece roughly half the teacher shortage (which in recent years was as high as 41 per cent) was covered by overtime, while in Portugal in 1961; 43.3 per cent of teachers were regarded as "overworked" i.e. doing much more than their normal share of duty. Although the actual proportion of total demand is not known, overtime is high in France at this educational level, to judge from figures given in Table 9 in the study on France (Appendix study on trends in numbers of teachers in higher education).

65. Given the lack of more exact data, an attempt can be made to measure the proportion of overtime through the size of the item covering it in the total amount paid out in salaries. In Austria overtime payments as a percentage of total salaries rose between 1962 and 1965 from 0.2 to 4.8 per cent in primary education, and from 2.5 to 8 per cent in general secondary. In Denmark for secondary schools the figure was 27 per cent in 1966-1967. This is an extreme case because the Danish Government, to attract and keep part of the teaching body (science teachers in particular), instituted an arrangement which, by offering teachers the opportunity to do a great deal of overtime, indirectly produced a salary increase for this part of the teaching body. Incidentally, the question arises whether, for financial reasons, certain governments may not have preferred to arrange for increased overtime rather than create new posts.

(3) The employment of teachers who have reached retiring age

66. Some Member countries took measures, in particular in connection with the problem of income earned in addition to a retirement pension(1), to keep teachers beyond retiring age or to encourage retired teachers to return to teaching. It is almost impossible to quote any figures in this connection because of the lack of systematic statistical coverage. The percentage of teachers regarded as retired and still teaching was 2 per cent in secondary schools in Denmark (1966), 1.6 per cent in secondary education and the middle department of comprehensive school in Sweden (1962). The corresponding percentage for primary education in Switzerland increased from 1 to 1.3 per cent between 1955 and 1960. It corresponded to 3 per cent of new teacher entrants for primary education in the Netherlands in 1952, falling to 1.3 per cent ten years later.

(1) The measures taken in this field are described in "Training, Recruitment and Utilisation of Teachers in Primary and Secondary Education" [STP(69)11] Part II, Chapter II, (2) (b).

67. The final retiring age is generally much more flexible for higher education than for other levels of teaching. In some countries an officially retired university teacher is sometimes authorised to continue giving tutorials or lectures. It is therefore even more difficult than in the preceding case to find examples of precise figures recorded by the university authorities. The situation is somewhat similar to that of private education, where, because the terms of employment are much more flexible than in State education, more retired people are often used (and these usually come from the State educational system). In Greece in 1963, 4.5 per cent of the staff employed in private schools were retired teachers.

68. The particular example of Denmark as regards the large part overtime plays in meeting the demand for teaching, and the wide use in other countries of overtime and of larger classes, raises the question as to how far it is possible to go on using such measures, and indeed the more general question of how teachers are to be used in schools and universities.

B. Relaxation of qualification requirements

69. Whether a person is regarded as qualified or not for a particular job is a question which can only be answered in the light of the criteria laid down in the country concerned. International comparisons in this field are therefore very difficult to make. Even within the same country, the definition of an unqualified teacher can sometimes vary from one region to another (in the case of a Federal State) or from one establishment to another according to the type and level of education they provide. During the period in question people qualified to teach have been leaving specialised teacher-training institutes but not becoming teachers, whilst others who have not followed the proper training channels have occupied the vacant teaching posts. If the presence of "non-qualified" teachers is freely admitted in primary and secondary education, this term is much more rarely used in technical and to an even lesser extent in higher education where it is possible to call on this or that category of teacher to offset the lack of regular teachers, usually in the higher posts. In general secondary education a teacher can be considered as qualified from the administrative point of view, given the level of study he has reached, but as insufficiently qualified, or unqualified, from the teaching point of view, when he is not a graduate in the subject he is teaching. It is for these various reasons that available data on the different educational levels will be grouped under the heading "Relaxation of qualification requirements".

(1) Primary education

70. In the decade 1950 to 1960 half the Member countries of the O.E.C.D. for which statistics are available used unqualified primary school teachers in proportions going as high as a quarter of the total number of teachers (Table 9). In Scandinavian countries between 1960 and 1965 the growth in numbers of unqualified primary school teachers clearly exceeded the proportions of unqualified staff which could exist if there were a rapid turnover of existing qualified staff (provisionally replaced by teachers with lower qualifications). The percentage of unqualified teachers can vary according to the educational level. Thus, in Sweden between 1955 and 1965 unqualified primary school teachers were always more numerous in the middle than in the lower departments of comprehensive schools.

71. Unqualified primary school teachers include student-teachers undergoing training, who constitute a normal reinforcement for staffs, and people who will later be given established status providing they pass specially streamlined examinations or the normal examinations but with the advantage of favourable conditions for preparing for them, bearing in mind the experience gained in the field(1). In Denmark, in 1961, student-teachers in primary schools and the lower classes of general secondary schools accounted for 4 per cent of the total number of teachers and 50 per cent of total non-qualified teachers.

(2) Secondary education

72. Except in Ireland, the United States and Norway, the proportion of teachers regarded in 1965 as unqualified was higher in general secondary education (Table 10) than in primary education (Table 9). Except in France, and perhaps Scotland, the situation nevertheless improved between 1960 and 1965.

73. In some countries for which it is possible to differentiate between lower and upper secondary education - whether the lower cycle has been standardized or whether in addition to traditional secondary education a short modern course has been introduced (with or without bridges to the traditional long course) - teachers at this level appear to have lost ground. This may be because the lower cycle became a part of compulsory education, and teachers of single subjects, who are usually more highly trained than primary teachers need to be, were required. Around 1965 the shortage seems to have affected, above all, the countries which have standardized the primary cycle throughout - Italy: 17 per cent unqualified (no specific qualification), Yugoslavia: 41 per cent (senior classes in single

(1) Details of measures concerning primary and secondary education are given in the study "Training, Recruitment and Utilisation of Teachers" /STP(69)11/, Part II, Chapter II (1) (b), referred to in the following as "document STP(69)11".

TABLE 9

Percentages of unqualified full-time teachers in primary education(1)

	1950		1955		1960		1965	
	MF	F	MF	F	MF	F	MF	F
Portugal (public)	22	26	31	35	26	29	16(2)	19(2)
Yugoslavia(3) (public)	-	-	-	-	-	-	-	2(4)
United States (public)	-	-	8	-	8	-	5	-
Sweden (public)(5)	-	-	2	-	3	-	10	-
Norway(6)	-	-	-	-	-	-	14	16
Denmark(7) (public)	10	22	8	16	8	14	11	14
Iceland	-	-	-	-	-	-	15	12
Irish Republic (8)	-	-	25	33	20	26	14	18
England and Wales(10)	-	-	3	4	3	3	3	4
Scotland(11)	-	-	3	3	4	4	6	6
Northern Ireland	14	20	3	5	2	2	1	2
Luxembourg (public)	-	-	-	-	-	-	2	3
France (12) (public)	-	-	7	8	14	15	5	-

Source: Same as Table 2.

(1) According to qualification officially required; in some countries (shown in the notes), the percentage covers both primary and secondary education.

(2) 1964.

(3) First four years of elementary schools (general teachers).

(4) Estimated.

(5) Estimated.

(6) Including continuation schools.

(7) Primary and lower secondary education; teachers regarded as "unqualified" have not graduated from teacher training college, a definition which has the effect of increasing the percentage of "unqualified" staff.

(8) Including so-called "supernumerary" teachers; the percentage includes special schools and secondary instruction given in national primary schools.

(9) Not including "supernumerary" teachers.

(10) Primary and secondary education (publicly maintained schools).

(11) Public and grant-aided schools; uncertificated teachers.

(12) Primary and continuation schools (short modern course).

TABLE 10

Trend in percentages of unqualified teachers in general secondary education (traditional or upper secondary education)

	1950		1955		1960		1965	
	MF	F	MF	F	MF	F	MF	F
Italy (upper secondary) (public)(1)	-	-	-	-	-	-	4	-
Spain(2) (public)	30	-	34	-	23	-	(3)	-
Yugoslavia (upper secondary) (public)(5)	-	-	-	-	19(6)	-	17(7)	-
United States (public)	-	-	5	-	4	-	4	-
Sweden (public)(8)	-	-	18	-	24	-	13	-
Norway(9)	-	-	28	54	.	-	6	9
Ireland(10)	-	-	-	-	16	19	12	14
Scotland(11)	-	-	3	4	7	8	8	10
Netherlands(12) (public and private)	12	-	14(13)	-	25	-	23	-
France(14) (public)	7(15)	9	12	-	13	15	27	29

SOURCE: Same as Table 2.

(1) Teachers with no specific qualification; classical and modern licei and teacher training colleges. Source: Statistical Yearbook of Italian Education, 1967.

(2) Other teachers category (i.e. non-university graduates), and thus including qualified teachers for special subjects (religion, physical education).

(3) 44 per cent for public and private sector.

(5) The percentage of unqualified staff in subjects taught in gymnasia in 1964/65 was 22 per cent; in training colleges at secondary level it was 30 per cent; percentages in the table refer to gymnasia, teacher training colleges and art schools.

(6) 1959/60.

(7) Forecasts.

(8) Teachers of general theory; university graduates; estimated figures.

(9) Including upper department of comprehensive school in 1965.

(10) "Unregistered" teachers.

(11) Non-certificated teachers; public and grant-aided schools.

(12) Percentage of lessons by unqualified staff; throughout the period such staff accounted for 33 per cent of both full-time and part-time personnel.

(13) 1954.

(14) Classical, modern and technical lycées.

(15) Excluding technical lycées.

TABLE 11

PERCENTAGE OF UNQUALIFIED TEACHERS IN SECONDARY TECHNICAL EDUCATION IN FIVE O.E.C.D. COUNTRIES

	1950	1955	1960	1965
	MF	MF	MF	MF
France (public)				
Technical lycées	-	20	12	- (1)
Technical Colleges	-	14	26	34
Italy (2) public (as a whole)				11
Technical Education				6
of which: Technical Agricultural Institute				9
" Industrial Institute				8
" Nautical Institute				10
" Commercial Institute				4
" Surveyors Institute				5
" Tourism Institute				18
Woman's Technical Institute				7
Vocational training				20
Norway (3)	-	-	-	48
Netherlands (4)	26 (5)	25 (6)	26	-
Yugoslavia (public) (as a whole)				67 (7)
Technical schools				56 (7)
Agricultural schools				49 (7)
Medical schools				88 (7)
Applied art schools				34 (7)
Schools for skilled workers				69 (7)

Source : Same as Table 2.

(1) Included in general education.

(2) Full-and part-time; teachers with no specific qualification are regarded as unqualified; technical teachers (except practical subjects).

(3) Full-and part-time.

(4) Full-and part-time, unqualified and partially qualified; estimates.

(5) 1952.

(6) 1957.

(7) Full-time only 1964/65.

school: teachers not qualified in the subjects they teach); Sweden: 80 per cent shortage of university graduates whereas the demand in schools at this level only amounts to 60 per cent of the total demand for this type of graduate; Turkey: sharp increase in the proportion of auxiliary and part-time teachers with lower qualifications. Where upper primary education and/or short modern still exists, the percentage of teachers regarded as unqualified is lower (4 per cent of lessons for example in the Netherlands in secondary modern) because many primary school teachers can more easily acquire supplementary qualification certificates than in the first case where a new and distinctly higher qualification is demanded.

74. Although the recruitment of teachers in technical education does not always follow the same criteria as those used in general education (some countries for example insist on industrial experience), the percentages of teachers regarded as non-qualified by the authorities, quoted in Table 11, show a more acute shortage up until 1965 than in general secondary education. Where it is possible to distinguish between a short vocational type of technical education from a longer, more theoretical technical education (technical level) as in Italy, France, the Netherlands(1) and Yugoslavia, it is clear that the first is in a less favourable position than the second.

75. Without always being able to determine whether the students concerned will finally opt for the teaching profession, some students have been recruited for the purpose of filling vacant posts in general secondary education. They accounted for 1.5 per cent of the total number of teachers in gymnasia in Denmark in 1966, 9 per cent of total teachers and 48 per cent of non-qualified staff (literary subjects, foreign languages, mathematics and science subjects) in the first cycle in Italy in 1961. In 1959, in the Netherlands, this category of teacher accounted for 40 per cent of the total number of newly appointed teachers and 49 per cent of newly appointed unqualified teachers.

76. As in primary education, when the shortage was at its worst the authorities recruited unqualified teachers by offering them established status after they had taken a reduced number of tests, or the normal qualifying examinations trained for under favourable conditions. But some countries (such as Iceland, some cantons in Switzerland, or Sweden) immediately gave established status to young university graduates who had not been trained as teachers.. Although this policy has remained exceptional in general education, it has on the other hand become widespread in technical education where a series of courses of varying length have been organised so as to offset the lack of training in teaching.

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(1) See STP(69)11, Table 53.

77. The use of teachers regarded as "qualified" because of the general level of studies they have reached, but who are non-specialists in the subject they are teaching, shows up the ambiguity of a purely "administrative" definition of qualifications required. In 1961, the proportion of teachers in general secondary education who were not graduates in the subjects they were teaching was 16.5 per cent in Ireland, 10 per cent in Italy for the three groups of subjects in the first cycle mentioned in paragraph 75 above, and 5.6 per cent in Portugal (State education only). In technical education, the figures were 10 per cent in 1959 (40 per cent of total non-qualified teachers) in boys' lower technical education in the Netherlands, and 16.9 per cent in 1961 in Portugal in State technical education. Generally speaking, the smaller schools have a higher percentage of teachers teaching outside their special subject because they are asked to do several different courses, as has been found in the United States(1).

The possible implications for teaching standards of these measures, which in their flexibility resemble the expedients resorted to at higher education level, will not be discussed here.

(3) Higher education

78. Few countries would refer to those of their higher education staffs who were recruited irregularly (from the point of view of recruitment regulations) as "unqualified". The variety of kinds of teacher training at this level, and the possibility of inventing new ones, makes it possible to avoid using a term more often heard in primary or secondary education. Nonetheless, of university staffs in France in recent years about 15 per cent of professors and lecturers, and 30 per cent of assistant lecturers, were unqualified.

79. As in other kinds of education, advanced level students were used, and often given posts as junior level staff. In Austria in 1958-1959 these "student assistants" accounted for roughly a quarter of the teaching body; this proportion subsequently fell to only 14 per cent in 1966-1967. In Portugal these students, besides supervising practical work, were even obliged to give lectures in a period of acute shortage (at the beginning of the sixties).

80. In the United States, higher education posts are offered to people with a Master's degree provided they will undertake to study for a Doctorate. This policy is sometimes applied, with varying degrees of flexibility, in Europe. Intermediate degrees are also created, enabling the holders to become middle-level teachers for example, which, given the further degree

(1) Percentages of teachers in the United States who have neither majored nor minored in the subject taught are given in Tables 64, 65, 66 and 67 of STP(69)11.

demanded, they could not have done earlier. Thus, in Canada, the University of Toronto has instituted an intermediate degree between a Master's degree and a Doctorate covering roughly two-thirds of the study needed for the latter. In Yugoslavia in 1960, to meet the requirements of the reform of higher education, special lectureships and senior lectureships were created which it is hoped to dispense with once the shortage is over.

81. Flexibility in recruitment in the United States can be measured indirectly by the percentage of people with Doctorates in each of the teacher categories (Tables D and E in the United States monograph in the Appendix). Considering here only the highest categories of staff, in 1966, 73 per cent of professors, 71 per cent of deans and 58 per cent of assistant professors had Doctorates.

82. By studying the structural changes in the teaching body it is possible to perceive the underlying realities. From Table III in Annex II to the conclusions of the Appendix study on higher education, it is clear that the proportion of senior-level university teachers has fallen in all the countries for which these teachers have been differentiated from others, except Spain. The proportion of middle level teachers has increased in Canada, Spain, Greece and the United Kingdom. It has also increased in the Netherlands and Switzerland and, as was to be expected, in Yugoslavia, but because of a different statistical presentation these last three countries cannot usefully be compared with the others. Junior level teachers often increased more than proportionally compared with other teachers. Their share of the total teaching body increased between 1950 or 1955 and 1965 in all the countries studied, except for Canada, Spain, the United Kingdom and Yugoslavia.

83. In non-university higher education teachers are not always adequately differentiated by level. Nevertheless in Japan and Yugoslavia, where this distinction is made, there is also a relative increase in the numbers of lower level teachers.

84. For a given balance between the various types of qualification at the beginning of the period, it is clear that in higher education teacher supply was made adequate to demand between 1955 and 1965 in most countries by recruiting disproportionately high numbers of lower level teachers, thus changing the balance between the various types of qualification.

(4) Private education

85. With one or two exceptions, the percentages of unqualified teachers in primary and secondary education quoted above all related to State education. In private education rules about teachers' qualifications are not as strict as for State education. It can be seen from Table 12 that teachers regarded as unqualified according to national definitions are more numerous in private than in State education.

Table 12

Percentage of unqualified teachers in private education and the percentage of teachers in the private sector in relation to the total number of teachers

	1950	1955	1960	1965
Denmark (1) primary and 1st cycle secondary	45	34	48	61(2)
(teachers in private education as % of total number)	10	10	10	9(2)
Spain (3) general secondary	50	48	46	-
(teachers in private education as % of total number)	80	79	76	-
France (4) primary	-	-	-	82(5)
(teachers in private education as % of total number)	-	-	-	14(5)
General secondary - short	-	-	-	36
(teachers in private education as % of total number)	-	-	-	20
General secondary - long	-	-	-	40
(teachers in private education as % of total number)	-	-	-	31
Technical secondary - long	-	-	-	54
(teachers in private education as % of total number)	-	-	-	-
Technical secondary - short	-	-	-	82
(teachers in private education as % of total number)	-	-	-	42
Italy (6) Secondary (1st cycle)	-	-	-	16
(teachers in private education as % of total number)				7
General secondary (2nd cycle)	-	-	-	11
(teachers in private education as % of total number)	-	-	-	24
Technical secondary - long (2nd cycle)	-	-	-	7
(teachers in private education as % of total number)	-	-	-	15
Technical secondary - short (2nd cycle)	-	-	-	16
(teachers in private education as % of total number)	-	-	-	6

Source : Same as Table 2.

Notes : (1) Non-graduate teachers from teacher training colleges; this percentage increases the percentage of unqualified teachers.

(2) 1966.

(3) Teachers not possessing degrees; this could include teachers qualified in special subjects, religious instruction, physical training.

(4) Teachers considered as unqualified are those who are not under contract (to the State).

(5) 1964/65.

(6) Teachers with no specific qualification.

(5) Women teachers

86. It should also be noted that more women than men teachers are regarded as unqualified in all countries except Ireland (Tables 9 and 10). This can be attributed to the greater number of women supply or deputy teachers recruited by national authorities in peak shortage periods. Women were most readily available when needed, even if their qualifications sometimes fell below the standards usually demanded.

(6) Examples of improvement in qualifications

87. Statistics showing changes in the level of qualifications demanded of teachers are only meaningful in countries where the educational level at which they are going to teach does not automatically require them to have reached a particular level of qualification. In countries where such a requirement does apply - the Continental European countries in particular, where allocation of a post sometimes depends on success in a competitive examination - the level of qualification is defined by regulations currently in force. Trends in the level of teacher training qualifications demanded of teachers can be inferred directly from Tables 9 and 10 above. Conversely, in countries where the qualification standards are more flexible, as in Canada, the United States, Japan and Yugoslavia, some improvements occurred during this period. In the United States both in primary and secondary education the number of teachers with a Master's degree increased. In nine Canadian provinces, between 1958 and 1964, the percentage of "fully qualified" teachers in primary education increased, and the same is true for secondary education with few exceptions. In Yugoslavia, the percentage of primary school teachers with higher education diplomas rose from 20.7 per cent in 1958 to 23.6 per cent in 1962. Japan, it seems, is the country for which it is easiest to judge percentage trends in the qualification levels demanded of teachers. The percentage of teachers who had had four years or more of higher education increased between 1956 and 1965 from 6 per cent to 17 per cent in primary education, from 20 to 45 per cent in lower secondary schools, and from 37 to 69 per cent in upper secondary schools(1). Although the terms of appointment for teachers are much more flexible in Japan than in European countries, this improvement is worth noting and comparing with descriptions of the difficulty in maintaining official standards for teacher appointments in Continental European countries. In spite of the progress made, countries such as the United States were still short of teachers in some subjects and were obliged to call on less qualified teachers.

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(1) For more details see Table 75 for Canada, Table 83 for Yugoslavia and Table 82 for Japan in document STP(69)11.

TABLE 13

Percentages of unqualified staff (or hours of teaching by unqualified staff in the Netherlands) in the various types of general secondary education, by subject or group of subjects

	NETHERLANDS							ITALY				FRANCE								
	Long secondary course				Short modern secondary course			Upper classical and modern course	Upper training college course	Middle school		Long secondary course(5)								
												Classical and modern lycées						Classical, modern and technical lycées		
	1958	1964	1965	1967	1953/57	1960	1964	1964/65	1964/65	1961/62(1)	1964/65	1950		1955		1960		1963	1965	1966
												MF	F	MF	F	MF	F	MF	MF	MF
Classical languages	12	15	14	11																
Mother tongue	31	31	30	27																
French	41	37	35	31	1.7	6.0	2.9	2	3	16	21							20.3	24.2	25.2
German (Foreign languages)	32	35	33	22	1.9	5.5	3.0											17.7(7)	23.1(7)	22.8(7)
English (Foreign languages)	30	30	31	29	1.1	3.2	1.4	5	7	33	11	6.5	8.3	8.2	10.8	10.7	13.9	18.2	21.7	21.6
History	13	12	10	9														17.0	19.6	18.9
Geography	22	19	18	19																
Mathematics	28	25	25	25	8.0	13.2	8.1	5	7	19(2)	15(2)							12.3	21.0	18.9
Biology	35	27	29	26														37.8	40.5	37.0
Chemistry	15	18	18	21				2(4)	3(4)			6.2	8.2	8.3	10.5	16.1	17.6	24.5(8)	21.8(8)	13.6(8)
Physics	26	33	33	33																
Drawing	25	36	37	36														21.3	26.6	22.2
Music	33	24	26	30																
Commerce	7	9	12	18	3.4	6.3	5.2				8(3)							17.7	18.5	20.6
Civics	9	9	12	15								19(6)	14 (6)	19.1 (6)	18.1 (6)	26.0 (6)	22.5 (6)	32.7	38.7	39.1
Physical education	0	0	0	0	7.1	11.3	7.0													
TOTAL	23.5	23.8	23.3	22	-	6.1	3.5					7.3	8.9	9.1	11.3	13.4	15.7	23.7(10)	27.2(10)	26.0(10)
																		51.1	51.7	54.0 (9)

(1) Estimate. (2) Mathematics and science. (3) Art and music and "technical applications". (4) Science subjects. (5) Classical and modern lycées in 1950, 1955 and 1960; classical, modern and technical in 1965. (6) Art and special subjects. (7) Spanish. (8) Natural sciences. (9) Manual training. (10) A few subjects involving a small number of teachers have been omitted.

C. Shortages in particular subjects

88. Since teachers in secondary and higher education specialise in one or sometimes two subjects, study of the various shortage indicators can throw into relief subjects for which teacher recruitment was particularly difficult.

(1) Secondary education

89. With regard to the use of retired teachers, it must be remembered that it was the acute shortage of teachers in science subjects which led Sweden and France (the latter country in 1958) to amend legislation concerning the possibility of a teacher receiving a salary in addition to his pension.

90. Examining the few available statistics on the proportion of overtime by subject for general secondary education in Sweden in 1960, in Greece in 1963 and in Denmark in 1966(1), it is clear that the percentage of overtime done in science subjects (chemistry, physics, biology and mathematics) is consistently higher than the average percentage of overtime for all subjects taken together. Next in order of amount of overtime teaching come foreign languages and the mother tongue. Statistics on unqualified teachers confirm these preliminary observations.

91. It was mainly the shortage of teachers in science subjects that led the French Government, for example, between 1957 and 1961 to give unqualified teachers established status after they had passed simplified, less onerous examinations than were demanded under existing regulations. Table 13 shows the extent of the problem for three Member countries with regard to general secondary education. Although it is in the science subjects that we find the unqualified teachers (between one-fifth and one-third), it must not be forgotten that some non-science subjects (such as the mother tongue, foreign languages and arts subjects) had even greater difficulty in recruiting qualified teachers.

92. In technical secondary education (Tables 14 and 15) apart from one exception (in the Netherlands for boys' senior technical schools) the recruitment of qualified staff according to subject or group of subjects appears to have given more trouble than in general education. This is true of the general subjects taught in both types of school as well as of specific subjects only taught in technical schools. The example of France (Tables 14 and 16 below) is instructive in this respect. Moreover, if Tables 14 and 15 are compared, it is clear that in recruiting teachers for the various groups of subjects technical schools training skilled workers and employees have

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(1) See Tables 41 and 42, document STP(69)11.

Table 14

Percentage of unqualified teachers (or number of hours teaching by unqualified teachers in the Netherlands) in prolonged or second level technical education, (by subject groups)

	France : Technical lycées				Netherlands: Higher level Technical Education		Italy: (5) Technical Institutes
	1960		1965 (1)		1957	1961	1964/65
	MF	F	MF	F	MF	MF	MF
Arts	12.0	13.1	-	-	4(3)	6(3)	5
Science	22.1	18.6	-	-	18(4)	20(4)	6(6)
Technical - theoretical	25.0	29.2	-	-	23	17	9
Technical - practical	19.5	22.5	31.8	28.6	12	13	-
Other subjects	23.5(2)	18.8(2)	-	-	-	-	-
Total	12.1	14.3	-	-	15	14	-

Source : Same as Table 2.

Notes : (1) After 1960, the figures for technical lycées are given together with the figures for classical and modern lycées, with the exception of practical technical education which is only given in the technical lycées.

(2) Arts subjects and special subjects

(3) General education

(4) Exact sciences

(5) Source: Annuaire statistique de l'enseignement en Italie 1966

(6) Mathematics and science subjects

TABLE 15

Percentages of unqualified teachers (or hours of teaching by unqualified staff in the Netherlands) in short or lower technical education by groups of subjects

	France (Technical Colleges)				Netherlands (boys lower technical schools)				Italy Vocational Schools (5)
	1960		1965		1952	1957	1961	1967	1964/65
	MF	F	MF	F	MF	MF	MF	MF	MF
Arts	24	27.6	39.8	46.6	15(1)	18(1)	18(1)	11(1)	17(3)
Sciences	24.6	28.0	34.5	40.7	40(2)	48(2)	50(2)	38(2)	31(4)
Technical - theory	29.3	34.4	30.9	36.4	36	51	43	45	28
" - practical	26.4	30.0	32.4	41	24	28	35	33	-
Other subjects	32.4 6)	33.7 6)	41.7 6)	37.7 6)	-	-	-	-	-
Total	26.4	30.5	33.9	40.8	29	32	33	30	-

Source: Same as Table 2.

Notes:
(1) General education.
(2) Exact sciences.
(3) Literature and foreign languages.
(4) Mathematics and science subjects.
(5) Source: Annuaire statistique de l'enseignement en Italie (1966).
(6) Arts and special subjects.

greater recruitment difficulties than technical lycées. More generally speaking, the very high percentages of unqualified teachers of general subjects in technical schools (by comparison with the situation in general lycées) can be attributed, in a certain number of European countries, to the ranking accorded to technical education (social prestige, working conditions) within the school systems.

TABLE 16

Recent trends in percentages of certain types of unqualified staff employed in French technical lycées

	1963	1965	1966
Engineering drawing	31.9	34.4	37.5
Special subject technical teachers	19.0	36.3	28.7
Freehand drawing	32.7	34.0	29.9
Home economics	28.4	24.6	22.0
Practical education(*)	23.8	31.8	32.7

Source: Same as Table 2.

(*) Classic, modern and technical lycées.

93. Turning now to the situation regarding the percentages of teachers who have not taken degrees in the subjects they teach, the few examples available show roughly the same trends as those described above. Thus, although substantial percentages (from 10 to 30 per cent) of science and mathematics teachers in lower general secondary education in Italy (1st cycle) and in Ireland, in 1961, were regarded as unqualified in the subjects they taught, some of the percentages of unqualified teachers teaching arts subjects (foreign languages, history, geography)(1) were even higher. In the United States in 1961 teachers who had not majored or minored in the subjects they taught were used extensively not only in mathematics and the

(1) See Table 61, document STP(69)11.

physical sciences but also in English and social sciences(1). In the Netherlands in 1959, in boys' lower technical secondary schools lessons given by teachers unqualified in the subjects they taught amounted to 49 per cent in general subjects, 24 per cent in the exact sciences, 15 per cent in theoretical subjects, and 12 per cent in occupational subjects.

94. Finally, as regards the teaching of the various subjects in secondary education, it must be admitted that the O.E.C.D.'s advice at the end of the fifties and beginning of the sixties on the need to improve teacher recruitment in mathematics, science(2) and technical subjects(3) had not had much effect by 1965. The persistent difficulties in recruiting science and technical teachers must not obscure the fact that the numbers of unqualified teachers and amount of overtime done have increased in such fundamental subjects as languages (mother tongue or foreign) and arts.

(2) Higher education

95. There are no statistics available for non-university higher education. With regard to university education, the problems can be approached indirectly by examining changes in the relative proportions of the three levels of university teachers in relation to the whole of the teaching body for each of the broad disciplines. Data on this are available for six Member countries (between 1955 and 1965 roughly) and are summarised in Table 17. This table shows with very few exceptions the large part played by junior level teachers. The proportion of senior level teachers has not increased in any of the six countries in pure sciences, arts or social sciences.

96. It is almost impossible to provide any other precise data on shortages by subject in higher education. Table 18 below compares the distribution of overtime with the distribution of students by faculties in France. It is clear that there was a much greater proportion of overtime in theoretical science courses than in practical and supervised arts teaching. More precisely, France is experiencing a teacher shortage in mathematics and some special subjects (chemical engineering, civil engineering, data processing, mechanical construction) in the new university institutes of technology providing two-year courses for higher technicians. Recently difficulties have emerged in the recruiting of mathematics and natural science teachers in Austria, and teachers of technology in the Netherlands. Turkey is having to face a persistent shortage of pure science and technology teachers.

(1) See Tables 64, 65, 66, 67 in document STP(69)11.

(2) For example: "Supply, recruitment and training of science and mathematics teachers". Science and education for the future, O.E.C.D. (1961).

(3) Discussions held in the O.E.C.D. during the confrontation meetings on "Training and functions of technicians" confirmed that all countries that took part in this review had great difficulties in recruiting teaching staff in sufficient number and quality.

TABLE 17

Changes in the relative proportions of senior, middle and lower level teachers between 1955 and 1965, by country and group of subjects

Country \ Group of subjects	Pure sciences			Technology			Medicine			Arts			Law			Social sciences		
	SL	ML	JL	SL	ML	JL	SL	ML	JL	SL	ML	JL	SL	ML	JL	SL	ML	JL
Austria						x		x	x			x			x			x
France (1957-1965)		x							x			x			x			x(a)
Germany (1952-1964)		x				x		x				x			x			x
Italy		x				x			x		x	x			x			x
Norway (1956-1965)		x			x	x	x		x			x			x			x
United Kingdom: Great Britain - (1954-1964)		x				x	x	x			x	x		x(a)	x(a)			x(b)
Northern Ireland - (1954-1964)	x			x	x	x	x	x			x	x	x	x(a)	x(a)			x

Source: Appendix to this study on Quantitative trends in teaching staffs in higher education .

Notes: (a) Included in the Arts.

(b) Covers only 1960-1964.

TABLE 18

Comparison between the percentage breakdowns of overtime and number of students, by faculty, in university education in France (1967-1968)

Faculty	Theoretical	Practical and supervised work	Total	Student breakdown
Arts	25	18	20	21
Law	27	50	42	35
Medicine and Pharmacy	10	6	7	16
Sciences	38	26	31	28

Source: Study on France. Appendix to this study on the teaching staffs in higher education.

97. This chapter has shown that many countries at one time or another have had to contend with a more or less severe teacher shortage which has compelled them to take emergency measures. Given the lack of more detailed statistics, it has not been possible to cover all Member countries when studying the various indicators of shortage provided by the emergency measures countries have had to take. The small number of national examples and characteristics quoted do not therefore necessarily apply to all Member countries. The same must be said of the examination in the following chapter of the deeper causes of recruitment difficulties and the longer-term solutions which have been found.

CHAPTER 3

The supply of teachers: main characteristics

98. Apart from the specific factors affecting teacher demand between 1950 and 1960, we must now consider what other reasons there were for the difficulties experienced in adapting teacher supply to demand. From what has been said above it is clear that, in quantitative terms, a great effort has been made by Member countries. To meet the shortage, countries did not confine themselves to the holding operations so described in the previous chapter. In many cases they evolved longer-term policies to review and counter shortage situations, or to limit some of their inevitable effects. These are the two main themes it is proposed to deal with in this chapter.

A. The main causes of recruitment difficulties

99. It is of course impossible to treat this subject exhaustively, since to do so it would be necessary to analyse in depth what has actually happened in Member countries. But each country has a recruitment policy peculiar to itself, and depending on its own particular combination of traditional attitudes (the importance attached to the "cultural heritage", or whether teachers are part of the Civil Service, for example), new developments in the country's economic situation, and policy decisions reflecting the importance that the society concerned places on educating its citizens. This last factor is important, because there is a tendency to attribute to the educational system and its administrators the entire responsibility for the difficulties encountered in recent years, and more particularly the problems of teacher recruitment.

(1) The general context

100. The educational system and its workings form part of a society which accepts, at one time or another, the need for changes in education, and takes the necessary measures to bring those changes about. There are few fields where a determined policy would not have had the effect of at least revealing what the problems were, and of keeping the need for emergency measures down to a strict minimum. If this has not been done in many countries, particularly at the beginning of the period considered, it is because there was no reliable machinery for forecasting and planning based on the careful collection of statistics, and for promoting research in education. Such machinery was all the more essential because educational systems were coming up against problems quite beyond their grasp.

101. At the beginning of the period, teachers were being recruited from the smaller age-groups born in the pre-war years. As time went on it became clear that changes in marriage and birth rates were affecting the wastage rate among female staff at the very time when the policy was to recruit women in greater numbers. Even new measures could not completely counteract the consequences of this kind of problem. The same was true when it came to facing up to the "wave mechanics" effect itself, which makes it impossible for the supply of graduate teachers to respond immediately to the increased demand caused in part by a population bulge, or "demographic wave", which is moving through the whole educational system.

102. Teachers also had to be given a share in the economic progress of their country, otherwise the deterioration of their "image" in society would have slowed down recruitment even further. Thus, despite the poor economic situation, some countries were obliged to take measures which, to some extent at least, led to a fall in the total supply of trained teachers. Examples of such measures are the increase in the duration of training for primary school teachers and some categories of secondary school teachers, and the reduction in their teaching load. Another factor which has had a similar effect in the short term is the recruitment, usually from among the existing teaching body, of the most dynamic teachers to meet the increased demand for administrators, inspectors and pedagogical advisers, and staff in training establishments and research centres. The transfer of teachers to such functions is one of the essential conditions for improving educational efficiency.

103. This catalogue of particular factors which slowed down teacher supply is not intended to excuse the specific shortcomings of the education authorities but to make it easier to understand the context in which they have had to work. It was inevitable that the lack of forecasting would accentuate the problems of a period which was in any case bound to be difficult.

(2) The machinery for training and recruitment

104. The conditions at present laid down for the recruitment of student-teachers can become an obstacle to their appointment to established teaching posts some years later. For these conditions are unfortunately determined by the ideas currently prevailing in the system rather than by any attempt to forecast future needs. The problems met with therefore arise directly from the way the educational system itself functions. Some examples will be given in the paragraphs below.

- Conditions for recruitment

105. Some authorities, and in some cases even the teaching body itself, continued to be influenced by earlier periods when teachers were in surplus supply, as for example in the Netherlands

in the thirties and in Austria at the beginning of the fifties. When the breadth of these problems was at last realised, the time-lag necessary to implement a more expansionist policy requiring changes in regulations and new resources, and the period required to train the teachers themselves, clearly ruled out any rapid adjustment of supply to demand.

106. The most serious error in this field seems to have been the willingness of many governments to carry on demanding qualifications with little relevance for mass education. Other studies (Study No. 1 on educational growth and Study No. 6 on structural adjustments) showed that the traditional education intended for an élite could not survive. Despite the growing demand for teachers in secondary and higher education, the education for which teachers in most Continental European and Mediterranean countries are trained is still intended for an élite. Without going into the question of the content of this training, it can at least be stressed that the length of time it takes is usually incompatible with the need to make teachers available quickly. There has been no attempt to strike a new balance between the duration of the initial training and the continuing training now generally acknowledged to be necessary. A student-teacher often takes 5, 6 or 7 years after finishing his upper secondary education to become a fully qualified teacher. The time required to become a middle or senior level teacher in university higher education is obviously much longer.

107. The time needed to give the system a sufficient stock of qualified teachers has been increased in some countries, and particularly in the Latin countries, where education has not yet rid itself of the élitist tradition, nor of regulations governing entry into State education which usually make it difficult to make informed judgements about the candidate's ability to teach. In fact, there have been many cases of courses having to be repeated or abandoned in all types of training courses.

- Inefficiency of the training system

108. In primary education in some Mediterranean countries output has been small over the past period. In Italy, some 30 per cent of candidates beginning courses between 1953-1954 to 1955-1956 managed to finish their studies within the prescribed time. In Spain, the rate for classes graduating in 1958, 1959 and 1960 was twice that recorded for Italy (i.e. 63 per cent), if allowance is made for the theoretical duration of the course. In Yugoslavia, for the period 1956 to 1960, the theoretical survival rate ranged between 63.5 per cent and 71.5 per cent.

The situation may be due to the high frequency of repeated courses: in Italy from 1953-1954 to 1962-1963, the average rate was 11 per cent during the first year, 13.5 per cent during the second, 7.9 per cent during the third and 16.3 per cent during the fourth and final year of study.

Failure to pass either end-of-year or final examinations may involve repeating part of the course. In Italy, the average examination success rate (in per cent) was 79.5 for the first year, 79.7 for the second, 88.2 for the third (between 1949-1950 and 1959-1960), and 78.1 for the fourth and final year (between 1949-1950 and 1962-1963). Students who drop out during the course reduce the numbers potentially available for teaching. In the Netherlands, the dropout rate was some 15 per cent, while the rate in Italy from 1953-1954 to 1959-1960 averaged 12.7 per cent in the first year, 9.1 per cent the second year, 5.4 per cent the third year, and from 1953-1954 to 1962-1963, 8.5 per cent in the fourth and final year. Although no figures are available, the dropout rate for Turkey is also thought to be high.

109. For secondary education as a whole, the loss appears to be small during the year (or two years) of teacher training for university graduates. The inappropriate character of certain selection and training criteria, already mentioned at the level of recruitment tests held prior to entry into training institutes (or sometimes directly into the profession), may also be a factor. A case in point is Austria, where, in 1963-1964, 39 per cent of candidates failed to pass the secondary teacher examination. In Portugal failures are also recorded in regard to the final teacher training examination. In France, the percentage of successful candidates for the "agrégation" in secondary education, in relation to posts available, rose in Arts between 1961 and 1964 from 60 per cent to 66.62 and 70 per cent respectively, and in Science from 41 per cent to 45.37 and 57 per cent. In science there were over twice as many candidates as posts and in the Arts over three times as many. The improvements recorded are primarily due to the decline in the numbers of available posts. This confirms that in these examinations, as in others at various levels, the examining boards are accepting a given percentage of candidates regardless of the trend in numbers and the country's actual needs. Part-time training moreover results in considerable wastage. In the Netherlands, in the late fifties, for instance, 66 per cent of students dropped out of evening courses preparing teachers for boys' secondary technical schools. More generally speaking, the number of candidates for teacher training (when it actually exists) also depends on the success rate of university courses, which is known to be low in many Continental European countries (France and Italy, for example).

- Degree of democratisation in recruitment

110. The number of potential candidates for teacher training or teaching posts after training also depends on the opportunities afforded to students from all social groups (by social origin, sex, region) to reach the highest levels of the educational system. Study No. 4 on group disparities in education shows that many countries have not yet evolved suitable policies for dealing with this question. The social origin of teachers in secondary and higher education naturally tends to reflect the participation of the various groups in the higher levels of education.

111. France is typical in this respect, when a comparison is made of the social origins of teachers (Table 19), and of students who have the opportunity of becoming teachers (Table 20), with the breakdown of the various socio-occupational categories in the labour force (last line of Table 20). The large proportion of primary school teachers from working class families, a phenomenon not peculiar to France, is the exception that proves the rule as regards teacher recruitment for the rest of the educational system, i.e. secondary and, a fortiori, higher education. Primary school teachers are recruited for training through a special channel in short modern secondary education at about 15 or 16 years of age, and the training course is completely free(1). Students' own reasons for choosing to enter on a teaching career are of little significance at that age. They are presumably attracted by the possibility of a short secondary education, with less prestige attaching to it than the traditional secondary education, but which is provided free and thus gives rise to this "island of democratisation". There is no such island in the training of traditional secondary school teachers. It is easy to see the difficulties that will arise in the future in trying to keep recruitment at least as democratic as it now is, but at the same time raising the age for recruitment so as to make a better selection of those students most likely to become good primary school teachers.

112. The lower proportion of women teachers in long secondary and higher education (in Switzerland for example) is also tantamount to a reduction of the total stock of graduates from which the educational system can recruit part of its staff. As Table 21 suggests, the low percentage of women in the teaching body for higher education is also due to the excessively long training period already mentioned in paragraph 106.

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(1) It is clear from Table 20 that diversifying the recruitment of primary school teachers by means of a second competitive examination for entry into teachers' training colleges open to students with the "baccalauréat" has meant a fall in the proportion of candidates from working class families compared with what happens in the first competitive examination.

Table 19

Social origin of serving teachers in France (1964)

Socio-professional categories	Serving secondary teachers (1964)	Serving primary teachers (1964)
Farms and farm workers	3	13
Workmen	10	27
Employees	17	19
Medium level executives (including primary teachers and businessmen)	28	31
Higher executives (including university and secondary teachers and professional classes).	42	10

Source: "La représentation de la condition du maître dans le Société", (the social image of teachers), Enfance Nos. 2,3 April, September 1966.

TABLE 20

Social origins of students who have the opportunity of becoming teachers in France (1960: in percentages)

	Farmers	Paid farm workers	Businessmen	The professions and higher executives	Medium level executives	Employees	Workmen	Service personnel	Persons with private means - no occupation	Unspecified	Total
Teacher training colleges (1960-1961)											
1st competitive examination(1)	11.4	2.5	12.8	3.0	17.2	13.2	27.6	2.2	3.7	6.4	100
2nd competitive examination(2)	7.8	1.2	13.5	5.8	22.3	13.1	22.6	1.3	4.2	8.2	100
Total	10.8	2.1	13.0	3.7	18.3	13.3	26.0	2.1	4.0	6.7	100
Universities (1961-1962)											
Faculty of arts	5.8	0.8	18.9	25.1	23.0	6.1	7.2	0.9	6.1	6.1	100
Faculty of science	6.4	0.6	17.9	27.5	16.8	9.2	8.6	1.1	7.8	5.0	100
Total(3)	5.6	0.6	17.6	28.5	17.8	8.0	6.4	0.9	7.0	7.6	100
Active population 1962	15.7	4.3	10.4	4.0	7.8	12.6	36.7	5.4	3.1		100

(1) Entering a training college at upper secondary level to prepare the baccalauréat (these students have normally taken the short secondary course i.e. the lower level).

(2) Starting the first year's training straight after the baccalauréat.

(3) All disciplines.

Source: Same as Table 2.

- Other examples of lack of flexibility

113. In such a context, the excessive differentiation between the training of teachers for primary schools and that of teachers for secondary schools (and ultimately for the universities), which shows itself in the inequality of social status accorded to the different branches of the profession, has had harmful results. The main effect has been to encourage false ideas about promotion. Since there was no system of promotion for the best and most go-ahead teachers at the educational level to which they were first appointed, such teachers have usually tried to leave that educational level and find a job with higher social prestige in the level immediately above.

114. But the excessive differentiation in training has also created difficulties in cases where governments have been forced to transfer primary school teachers, for example, to lower secondary education when the "population bulge" moved through the school system.

115. Furthermore, regulations couched in legal terms unsuitable for dealing with specifically educational problems have prevented more extensive use being made of specialists working outside education who could have taken an active part, either full-time or part-time, in educational work. Was it only in terms of an unseemly scramble to capture the best graduates that the relations between the schools and other sectors of activity had to be seen? Does not the creation of a really "educative environment" require co-operation between all members of the community (the family, the schools, private enterprise and the public authorities), and a completely different approach from that which in some countries has led to the isolation of the school from its immediate environment?

116. In the tradition-bound context described above, and bearing in mind the material resources of which they were then in need, many educational systems, especially at the beginning of the period in question, did not have the means to compete on equal terms with other branches of activity. It still remains true, however, as the experiences described above indicate, that it is the educational system which is efficiently managed, with democratic provision of opportunities for promotion of staff to the highest levels and flexible conditions for the recruitment of high quality staff, which has the best chance of coping successfully with its recruiting requirements.

(3) The lack of financial resources and its consequences

117. Of course, limited financial resources can be utilised with varying degrees of efficiency, as some of the experiences described above have proved. At one time or another during the 15 years under review, the consequences of the limitation on

Table 21

Departure rates in the teaching profession

	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965
Germany												
Primary schools									7.6			
Realschulen									6.7			
Gymnasia									5.5			
Vocational schools									5.4			
Technical schools									4.7			
Engineering schools									3.4			
Canada (1)												
Primary and secondary										10/12		
England and Wales												
Primary and secondary (2)												
Men							7.7	8.2	8.3	9.2	10.0	9.9
Women							4.0	4.5	4.8	5.2	5.8	6.0
							10.2	10.8	10.9	12.4	13.2	12.9
Netherlands												
Primary	6.0	6.1	6.9	7.5	7.6	8.1	8.3				6.3	
Secondary general - long												
U.S.A. (3)												
Primary									17			
Men									17.3			
Women									16.8			

Source : Same as Table 2.

Notes : (1) Source : N. France, Teachers in Canada - Supply and demand (Mimeographed).

(2) Public

(3) Source : Shortage of Primary Teaching Staff. BIE publication No. 255. (The rate seems accurace for the years around 1962.)

financial resources - in spite of the steep increases which have taken place (see Study No. 2) - have differed from country to country. The most important consequences can best be described by considering first the problem of expansion in training institutions, and then that of the socio-economic status of the teachers.

- Available places in teacher training institutions

118. Even when the number of candidates entering training institutions was rising, the growth in the number of places in such institutions sometimes lagged behind(1) because of lack of accommodation. Few countries, unfortunately, have provided statistics on this problem, which arises from the failure either to forecast needs or, more usually, to work out the correct priorities in allocating, according to need, the financial resources at the disposal of the educational system. Thus, in Sweden at the beginning of the 60's many candidates were refused entry to teacher training colleges for primary school teachers, not because they did not have the requisite qualifications but because there was no room for them. Meanwhile, teachers regarded as unqualified were being used in the schools. Between 1957 and 1964 more than 60 per cent of applicants for places in teacher training colleges for secondary education had to be rejected. In special training centres (operating in the secondary schools themselves, and therefore more flexible) the rejection rate reached a peak of 40 per cent in 1953, but had completely disappeared by 1962. The fact that at one time or another measures were taken by both France and England to use existing premises beyond their normal capacity suggests that those two countries, for example, were confronted by similar problems.

- The socio-economic status of teachers

119. The lack of space and facilities was of course not restricted to training institutions. The schools themselves where the teaching was done were affected. This, combined with the lack of auxiliary staff, meant a deterioration in teachers' working conditions.

120. The resources made available to the school authorities were not always sufficient to enable them to create the new posts needed to meet requirements even when, as was sometimes the case, qualified candidates were available in sufficient numbers. The tendency therefore was to use existing staff more intensively (overtime, larger classes), or to recruit where absolutely necessary unqualified teachers. These teachers had neither the incomes nor the job security nor the same duties as teachers in established posts.

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(1) Surveys by the International Bureau of Education (the shortage of teachers in primary and secondary schools, publications No. 255 and 301) have drawn attention to this problem.

121. In some countries (particularly in the Mediterranean Basin) at the end of the '50s, it was found that despite the fact that teachers' earnings sometimes grew faster than average incomes per head (see Study No. 2) their salaries were still too low to attract some graduates (this is particularly true of male graduates in general and of specialists in science and technology) who preferred to take more lucrative jobs in other professions. Some established teachers even give up teaching altogether to take better jobs outside the profession.

122. The combination of insufficient financial resources, and the authorities' failure to provide new opportunities for promotion for go-ahead teachers either within or outside the level of education in which they were first appointed as teachers, made teaching less attractive than ever by comparison with other career-profiles open to highly-qualified manpower as a result of technological, economic and social progress.

123. The social image projected by teachers in the classroom and educational establishments generally can be a source of vocational inspiration to pupils. It is doubtful whether the teacher's image in Member countries most affected by recruitment problems has always provided such encouragement, for in some cases that image was further coloured by the spectacle of an out-of-date educational system applying standards which were too inflexible to be able to attract the outstanding personalities it needed. This was not the case everywhere, or for all types of education, but some countries were affected more than others and this naturally influenced the numbers of graduates entering the teaching profession.

(4) Participation rates in the teaching profession

124. The combination of all the various factors mentioned above with the high percentage of women in the teaching body has produced results for the profession which can be measured as participation rates. Unfortunately, however, it is rarely possible to isolate the particular effects produced by each of these factors. This could only be done by individual studies.

125. As a first step it is possible to measure the proportion of teachers who entered the profession immediately on graduating. In the United States in 1965, 81 per cent of primary school teachers and 66 per cent of secondary teachers entered education the year they graduated. For secondary teachers, the proportion varied between 79 per cent for women teachers of physical education to 58 per cent for graduates in social studies. In England and Wales 16.4 per cent of women and 4 per cent of men were lost to education during the year following their graduation from teacher training college; in the Netherlands the rate was 10 per cent for primary education; in Greece refusals of posts amounted to 17 per cent of posts offered in 1963 in primary education and 27 per cent in secondary education (from 1960 to 1965).

126. The few statistics available on annual departure rates from the profession confirm the first indications given in the paragraph above. This rate was higher for women than for men (Table 21) except for primary school teachers in the United States. The comparatively high departure rate of men teachers in American primary schools may perhaps be due to the low social rating of primary school teaching as a profession for men, and the opportunities for employment outside the school system. The latter factor explains why in other countries graduates from technical teacher training colleges are very often attracted to other branches of activity. Thus in the Netherlands in 1961 only 85 per cent of men who had completed this type of training between 1956 and 1960 (65 per cent for women graduates) were still in the profession. The rates vary according to the subjects in which they specialised: they range from 100 per cent for subjects connected with navigation and naval construction to 25 per cent for shorthand-typing teachers. During the period 1962 to 1963 a quarter of the graduates from teacher training institutes for higher technical education in Turkey went into education.

127. Finally, Table 22 below shows that in England and Wales the highest rate of departure from the profession is found among university graduates who have had no training as teachers, while teachers from teacher training colleges have the lowest departure rate. This would seem to show that the more teacher training they have had the less likely teachers are to leave the profession. Table 22 shows a slight increase in the rate over that assumed when forecasting teacher requirements.

TABLE 22

Annual departure rate in primary and secondary education by type of training and by sex in England and Wales

	Trained graduates		Untrained graduates		Graduates from training colleges	
	M	W	M	W	M	W
1960-1961	3.6	9.9	11.1	25.6	3.3	9.9
1961-1962	4.2	10.4	11.8	21.2	3.8	10.5
1962-1963	4.9	10.5	11.1	21.5	4.1	10.5
1963-1964	5.5	11.7	11.6	22.0	4.3	12.1
1964-1965	6.3	13.0	12.4	21.9	4.8	12.9
1965-1966	6.5	13.1	12.2	23.1	5.0	12.5

Source: Statistics of Education- Teachers 1966, Vol. 4.

128. These few fragmentary statistics do not give a full picture of the main causes of recruitment difficulties. They nevertheless provide a preliminary indication of the additional numbers of teachers who must be recruited every year to offset these departures, and of the absolute necessity of having detailed knowledge of flows of staff into and out of the educational system.

B. The response of the educational authorities

129. For the responsible authorities this situation has meant that some posts remain unfilled. The number of such vacancies is not a reliable indicator of shortage because it usually only covers established posts in the public education system. Moreover these rarely include part-time posts. Finally, the fact that an established post is vacant does not mean that it is not "physically" filled, and it is precisely the way in which it is so filled that would give a truer indication of the shortage. Nevertheless, the few statistics on unfilled vacancies given in Table 23 sum up in another form the size of the problems to be solved.

130. Besides the emergency measures described in Chapter 2, school and university authorities have tried to solve the problems confronting them by attempting to broaden and diversify the traditional sources of recruitment, making better use of available teachers, and improving the status of teachers.

(1) Broadening and diversifying recruitment

131. Measures for broadening traditional recruitment sources mainly concerned the ways in which teacher training institutions functioned. At the same time greater efforts were made to recruit women and specialists whose main professional activity lay outside the educational system. Such efforts were all the more successful because it was possible to offer them non-established and part-time posts.

- The performance of the teacher training institutions

132. Countries have made an enormous effort to accept more student teachers in training institutions. In roughly half the Member countries for which figures are available, numbers of graduates from teacher training colleges increased more rapidly than those of pupils in primary education between 1950 and 1965(1). Four countries out of eleven experienced the opposite trend between 1950 and 1955, but these medium-term measures had still not had time to take effect. Table 24 shows that in five of the twelve countries student-teacher enrolments increased threefold.

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(1) See Table 13, document STP(69)11.

TABLE 23

Percentage of vacancies in General Education

in several O.E.C.D. countries (1957-65)

	1957	1960	1961	1962	1963	1965
Primary						
Austria						11
Secondary						
- Austria (general secondary)						7
(technical secondary)						5
- Spain (secondary general)			30 (1)			
- France (long general secondary)						
Science	10					
Arts	8					
- France Technical lycées						
General Sciences						
Mathematics, Sciences	)21	23				
Arts	)	22				
Foreign languages	)11	13				
Theoretical Technical Subjects						
Mechanical & Engineering drawing	24	43				
Freehand drawing & applied arts	21	24				
Commerce and economic science.	15	30				
Practical Subjects						
Technical teachers of single subjects	21	24				
Technical teachers supervising practical work	12	17				
Assistant technical teachers (men)	11	19				
" " " (women)	6	18				
Commerce	11	24				
Domestic Science	28	27				
Social education	8	11				
- Portugal (general secondary)						
Efectivos			14 (1)			
Auxiliares			51 (1)			
Contratados			16 (1)			
- Portugal (Technical secondary)						
Efectivos	-	23				20
Adjuntos	-	58				44
Auxiliares	-	80				68
Contratados	-	-				18
Mestres	-	-				16
- Sweden (all secondary education)(2)						
Theoretical subjects			37	37	30	
Practical subjects, fine arts, special subjects, etc.			4	4	3	

Source: Same as Table 2

Notes: (1) 1960/1961.

(2) Including upper department of comprehensive schools.

TABLE 24

Growth in total numbers of students in training colleges for primary teachers, 1960-1965 (1950 = 100)

	1950	1955	1960	1965
Austria	100	100	136	254
Belgium	100(1)	118(2)	150(3)	204(4)
Denmark	100(5)	145(6)	203(7)	293(8)
France	100	127	192	221(4)
Iceland	100	73	97	325
Republic of Ireland	100	134	176	185
Italy	100	180	173	286
Luxembourg	100	118	78	166
Netherlands	100	151	250	318
Portugal	100	116	181	119(4)
Spain	100	135	205	299
Turkey	100	97	148	303

Source: See source under Table 2.

(1) 1949-1950.
(2) 1954-1955.
(3) 1959-1960.
(4) 1964-1965.
(5) 1951-1952.
(6) 1956-1957.
(7) 1961-1962.
(8) 1966-1967.

133. To achieve this result use was made of modern methods of publicity and financial incentives which sometimes led (in France for example) to the pre-recruitment of student-teachers. Methods of operating teacher training institutions were reviewed so as to increase efficiency. Country-wide surveys and allocations of all available places were made. In England and Wales, for example, a flexible clearing system was used, and the percentage of candidates rejected out of all candidates having the requisite qualifications fell from 11.7 per cent to 6 per cent between 1963 and 1966. Moreover, roughly 70 per cent of those rejected could be considered as "unacceptable". In Sweden from 1964 onwards it was found possible to accept all graduates wishing to do a teacher training course. To make it possible to accept more students in training institutions, arrangements were made for more non-residential students, and courses were reorganised to ensure optimum use of the equipment provided. Finally, greater use was made of part-time training and, where necessary, courses were shortened(1).

134. The sources from which recruits for training colleges for primary teachers are drawn have been broadened. Generally, candidates holding a secondary school-leaving certificate were offered the possibility of taking a somewhat shorter vocational training course than the general training designed for student-teachers recruited from lower secondary education(2), thus making primary teachers available to schools more quickly. In the short term, countries which have been able to discard traditional recruiting practice have naturally had fewer problems in regard to premises, the number of students in each establishment at one time being smaller since training has been made shorter than previously.

135. In countries where the staff responsible for training student teachers and the curricula they use are particularly well adapted to the school's vocational aims, the success rate for pupils is high (England and Wales, Denmark, France, for instance). In order to shorten university studies Sweden has drawn up training plans which prevent the would-be teacher from falling too far behind during his specialised studies. The same possibility was being considered in Austria.

- Proportion of women teachers and use of specialists

136. It is important to see how far Member countries have used this "talent reserve" of women with or without a teaching qualification who left education or some other form of activity on

(1) For more detail on the policy measures introduced, see Part II, Chapter 1 of STP(69)11 for all the points mentioned in paragraph 133.

(2) See Table 11, document STP(69)11.

marriage, on the birth of a first or subsequent child or to accompany their husband and so on. Some countries have introduced specific legislation as a result of surveys made on this topic(1). New legislation has generally gone hand-in-hand with an increase in part-time posts, which are popular with women interested in entering or re-entering the teaching profession.

137. The ban on married women keeping their permanent post after marriage was abolished in the Netherlands in 1959, in Ireland in 1958, and has also been dropped in some Swiss cantons. Recruiting drives have been launched, and in Germany and England an attempt is being made to keep in touch with people who have left teaching. Besides an increase in part-time posts, some countries offer women teachers easier hours (with a corresponding drop in salary) thus enabling them to look after their children (Denmark, Iceland and some German Länder).

138. But a systematic policy in this field can come to grief as a result of the very situation it is trying to improve. More nursery schools are needed to look after these women teachers' young children, but more nursery schools mean using precisely those women teachers who are wanted for primary and secondary education.

139. Despite this difficulty, the policy applied in England has had some success. In 1961, 4,600 married women returned to education; the number had risen to 7,200 by 1965. As a result, between 1962 and 1965, 82 per cent of teachers re-entering education were women. However in countries such as Austria and Germany, it is especially the entry of young women graduates from teacher training colleges that has helped to broaden recruitment. In Germany, between 1950 and 1965, for general education (primary and secondary) as a whole, the increased intake was 2.7 times higher for women than for men.

140. Table 25 shows that in State primary education (or sometimes State and private together) an increase in the proportion of women teachers was to be observed in 17 out of 22 countries. In none of the countries where a decline was noted has the number of women teachers diminished in absolute terms.

141. The slightly diverging trends found in any one country when examining general secondary education by levels or types cannot be explained in the present state of documentation (Table 26). With only one exception, Turkey, the proportion of

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(1) The best example is the Kellsall report, in the United Kingdom, on "Women and Teaching" (1963).

TABLE 25

Trend in percentages of full-time women teachers in primary education (public or public and private) in O.E.C.D. Member Countries

(1950, 1955, 1960, 1965)

	1950	1955	1960	1965
Increase greater than two points				
Germany (1)(public+ private)	38	39	45	52
Austria (public + private)	54 (2)	54	55	57
Denmark (3) (public)	41	43	46	50
(private)	49	47	50	51
France (public)	62	-	63 (4)	66 (5)
(private)	-	-	-	85
Ireland (public)	67 (6)	69	69	70
Northern Ireland (public)	69	70	73	74
Iceland (public)	27	-	35	41
Norway (7) (public)	44	46	-	54
Netherlands (public + private)	46	47	52	52
Sweden (8) (public)	66	64	-	74 (9)
Switzerland (public)	40 (10)	42 (11)	43 (12)	-
Slight Increase (less than two points)				
England & Wales (public)	74	73	75	75
(private)	50	52	66	64
Scotland (13) (public)	84	84	84	86
Spain (public + private)	60	61	58 (4)	61
Italy (public)	71	71	73	73 (9)
(private)	89	90	90	92 (9)
Portugal (public)	85	86	87	87 (9)
(private)	-	-	-	88 (9)
Yugoslavia (public)	57 (14)	57 (14)	58 (14)	59 (5)
No Change				
Turkey (15) (public)	26	27	24	26
(private)	-	79	79	81
Slight Decrease (less than two points)				
Japan (public + private)	49	46	45	48
Luxembourg (public)	50	51	50	49
Decrease greater than two points				
United-States (public)	91 (16)	87	86 (4)	85 (17)
(private)	93 (16)	-	94 (4)	94 (17)
Greece (public)	54(10)(14)	49 (14)	45	45 (18)
(private)	-	-	61	66 (18)

Notes:

(1) Grund und Hauptschulen (excluding the City-States).

(2) 1952.

(3) Primary and 1st (general) cycle of secondary education.

(4) 1959/60.

(5) 1962/1963.

(6) Not including excess teachers (usually women).

(7) Including continuation schools.

(8) Source: for 1950 and 1955: UNESCO Statistical Yearbook, 1968: including secondary classes and special classes attached to primary schools.

(9) 1964/65.

(10) 1951.

(11) 1956.

(12) 1961.

(13) Public and grant-aided schools.

(14) Source: UNESCO Statistical Yearbook, 1965.

(15) Source: MRP Report, Turkey.

(16) 1949/1950.

(17) 1963/1964.

(18) 1966.

TABLE 26

Trend in percentages of (full-time) women teachers in general secondary education (public or public and private) in O.E.C.D. Member Countries (1) (1950, 1955, 1960, 1965).

	1950	1955	1960	1965
Increase				
Austria (public)	31 (2)	36	34	37
Spain (public)	30	38	43	-
(private)	35	38	39	-
France (long secondary-public) (3)	47	49 (4)	53 (5)	52 (6)
Greece (public)	-	30	31	37 (7)
(private)	-	36	39	41 (7)
Italy				
1st cycle (public)	56	60	61	62 (6)
1st cycle (private)	56	59	62	60 (6)
2nd cycle (public)	45	48	50	55 (6)
2nd cycle (private)	48	58	58	57 (6)
Luxembourg (long secondary-public)	15	17	20	20
Norway (public) (8)	19	18	31	25
Netherlands (public + private) (9)	20	24	24	22 (6)
Portugal (public)	43	50	56	60 (6)
No Change				
Ireland	-	-	51	51
Decrease				
United States (public)	56	51	47	46 (10)
(private)	61	-	57	54 (10)
United-Kingdom:				
England & Wales (modern and other public)	45	45	45	41
(other private)	57	56	58	54
(grammar schools public)	46	45	42	40
(grammar schools private)	57	55	52	48
Scotland (public & grant-aided)	45	44	45	42
Yugoslavia (2nd cycle public) (11)	51	50	46 (12)	46 (13)
Different trends according to types of education				
Germany (public + private) (14)				
Realschulen	44	43	43	45
Gymnasia	31	32	32	31
Japan (public + private)				
1 st cycle	24	23	22	25
2 nd cycle full-time	-	18	18	18
2 nd cycle part-time	-	15	13	11
United Kingdom & Northern Ireland (public)				
Intermediate Education				
Grammar schools	44	41	45	48
	49	47	47	46
Switzerland (public)				
Secondary Schools	12 (2)	12 (15)	11 (16)	
Lower Intermediate	12 (2)	12 (15)	15 (16)	
Upper Intermediate	16 (2)	16 (15)	15 (16)	
Turkey				
1st cycle (private)	-	41	30	33
1st cycle (private)	-	-	54	56
2nd cycle (public)	41	47	44	44
2nd cycle (private)	-	-	42	47

Notes: (1) By way of complementary information, the following are the percentages registered for the countries not included in the table:
Belgium (State) : 39 (1964/65), private : 43,
Denmark (2nd cycle public) : 28 (1966/67),
France (short public education) : 51 (1961/62),
Luxembourg (intermediate public education) : 21 (1966/67)
Portugal (private) : 48 (1964/65),
Sweden (public) : 39 (1964/65).

(2) 1951/52 (3) Long general secondary until 1960; then general secondary and long technical.
(4) 1954/55 (5) 1959/60 (6) 1964/65 (7) 1963 (8) Traditional secondary until 1960; 1965 - includes upper section of comprehensive schools and folk high schools.
(9) Source : UNESCO Statistical Yearbook, 1968. (10) 1963/64
(11) Gymnasia, training colleges, art colleges; source : 1950 - Statistical Yearbook; 1958 - MRP Report 1965 - Statistical Yearbook. (12) 1958 (13) 1962 (14) Source : Federal Bureau of Statistics; excluding the City-States. (15) 1956/57 (16) 1961/62.

women teachers in general secondary education is lower than in primary. In 15 cases out of 28 (observed over ten years whatever the type of education considered) the proportion of women recruited has increased. Except in Japan (upper secondary part-time teaching), no drop in the absolute figure has been noted. But the number of instances of a decline in relative terms is higher than for primary education.

142. Technical education has also seen an increase in the proportion of women teachers (Table 27), except in Turkey and the United Kingdom (further education). In this type of education the varying use of women teachers depends on the breakdown of pupils, by sex, among the various types of training offered.

143. Statistics for higher education are scarcer. There is little possibility of comparing a given situation at the beginning and the end of the period. Table 28 shows that the participation rate for women in university teaching is just over 20 per cent in three countries only (United States and two Mediterranean countries). Where statistics are available, it is clear that the rate has increased (or in some cases remained unchanged) but it is still appreciably lower than for secondary education. In non-university, higher level teacher training establishments, however, the participation rate for women staff is in every case higher than in universities, and in Ireland higher even than in secondary education (the same was true in Great Britain before 1960, after which there was an appreciable drop in the rate in colleges of education). Fewer women teachers go into non-university technical education - perhaps because of its special subjects - than into teacher training.

144. Women hold fewer posts of responsibility than men. In Denmark in 1966, for primary and lower secondary education, only 2.8 per cent of headships and 16.4 per cent of assistant headships were held by women. In England and Wales, the handicap of women teachers with regard to a career can be seen in the percentage of persons receiving responsibility allowances. Thus at the 31st March, 1963, 50 per cent of men and 25 per cent of women were receiving allowances after seven years' service; for teachers aged 50 and over the respective proportions were 82 per cent and 55 per cent. For university education, the few country case studies in the Appendix, on teachers in higher education, that can serve to bring out these figures (Austria, Belgium, Canada, France, Norway, United States) show that the higher the status, the fewer the women. In Norway in 1965 women teachers accounted for 6.1 per cent of permanent staff but 12.6 per cent of temporary staff.

TABLE 27

Trend in percentages of women teachers(1) in technical secondary education in O.E.C.D. Member countries (1950, 1955, 1960, 1965)

			1950	1955	1960	1965
Portugal		(public)	27	-	40	45(2)
		(private)	-	-	-	30(2)
Italy(3)	long technical	(public)	39	43	44	46(2)
	" "	(private)	41	45	43	41(2)
	short technical	(public)	40	42	38	42(2)
	" "	(private)	31	42	53	59(2)
Greece	technical	(public + private)	-	3(4)	3	6(5)
	vocational	(public + private)	-	-	-	34(5)
Yugoslavia	secondary technical		-		32(6)	-
	skilled workers		-	-	20(6)	-
	other vocational schools		-	-	40(6)	-
	Total		-	-	-	35(5)
Turkey		(public + private)	35	35	30	-
Spain	technical baccalauréat	(public)	-	20	39	-
	business schools	(public)	8	22	21	-
France	long technical secondary	(public)	-	-	37 (7)	37(2)
	short technical secondary	(public)	-	-	38(7)	37(2)
Switzerland	business schools		14(9)	21(10)	19 (11)	-
Luxembourg	short technical secondary	(public)	-	-	-	10 (12)
Belgium		(private)	-	-	-	53(2)
Netherlands		(public + private)	33(14)	34(4)	34(8)	-
Austria (13)	technical and vocational	(public + private)	4 (9)	4	6	6
	business		40 (9)	42	46	47
	domestic science		91 (9)	94	92	91
United Kingdom : England and Wales	technical secondary(13)	(public)	30	31	30	31
		(private)	44	34	35	27
England and Wales	further education(13)		-	15	14	15
Northern Ireland	further education (13)		37	35	29	33
Scotland	further education (13)		-	19	16	17
Germany (15)	full-time vocational (Berufschule)		27	36	33	30
	part-time vocational (Berufschule)		59	57	56	55
	technical (Fachschule)		-	-	44	46

(1) The data available rarely distinguishe between full-time and part-time teachers; when full-time teaching can be identified this is indicated by a note.

(2) 1964/65.

(3) Not including practical instructors.

(4) 1957.

(5) 1963.

(6) 1958. Source: MRP Report, Yugoslavia, Table 46.

(7) 1959/60

(8) 1962

(9) 1951-1952.

(10) 1956-1957

(11) 1961-1962.

(12) 1966-1967.

(13) Full-time teachers only.

(14) 1952

(15) Source: Federal Bureau of Statistics; full-time teachers only.

TABLE 28

Percentage of Women and Men teaching part-time in higher education

(in %)

		Women teachers				Part-time men teachers (in %)			
		University	Non University	Non University technical	Teacher Training Colleges	University	Non University	Non University	Teacher Training Colleges
Germany	1956/1957							23.4	
	1960/1961	5.9	11.5			11.7	35.8		
	1966/1967							28.6	
Austria	1966/1967	8							
Belgium	1953/1954					28.7			
	1966/1967	10.4				29.6			
Canada	1957/1958	14							
	1960/1961	14		8.5	60			10	7
	1968				39				30
	1954/1955					45			
	1963/1964					38			
Denmark	1960/1961				18				
	1966/1967								41
Spain	1940	3.5							
	1960		25.3			70			
	1966	13.7							
United States	1966	20				33			
Greece	1960					21.3			
	1967	4.5			31				
Ireland	1960	13.8			72	34			
Italy	1945	9							
	1957/1958					61.9			
	1961/1962					70.9			
	1966	18							
Japan	1950	5.6	28.2			40.3	53.3		
	1965					31	54.4	17.7	
	1967	8.0	38.9	32.9					
Norway	1961	6.2				4.5			
Netherlands	1958	3.3							
Portugal	1960	10.9				24.5			
United Kingdom :	1963					3			
	1965	10.6							
Scotland	1958				54				
	1961								15
	1968				38				
England & Wales	1954				70				
	1961								14
	1962								12
	1967				36				
Northern Ireland	1957	6				12			
	1961	11			46	19			8
Switzerland	1961					53.3			
Turkey	1944	16							
	1957			11	28				
	1961			14	33				
	1965	24							
Yugoslavia	1957	18.7		20.1	23.8				
	1961	20.3		14.7	26.7				

Source : Appendix to this Study on quantitative trends in the teaching body in higher education.

145. As regards the position of women according to subject, it is noticeable that in general secondary education, for eight of the ten cases considered(1) the participation rate of women in science subjects is lower than for other subject groups. In university education, at certain job levels, there are sometimes no women in the teaching body. Thus between 1962 and 1966 in Austria there were no higher-status women teachers in technology, pure science, social sciences or architecture; the number is minimal in Canada for architecture and technology at medium and higher-status level. There were no women teachers of commercial sciences in Norway in 1965.

146. Finally, Tables 25 and 26 show that, for private general education, in three-quarters of cases considered at the end of the period, the rate of participation by women is higher than in State education.

147. Although socio-cultural difficulties can prevent the systematic use of women teachers, progress can still be made particularly in secondary and higher education. Comparisons between countries seem to suggest this, and in general secondary education some countries have experienced both a teacher shortage and a relatively low participation rate for women in the teaching body (German-speaking countries, Scandinavian countries). As has been emphasized previously, the admission of women to long secondary and higher education, the ideas prevailing in society on working women and their choice of special subject can hold back the increase. A review of the conditions for entry to higher education posts could also help increase the number of available teachers.

148. Outside technical education and private education in general, little effort has been made to attract specialists who have worked in other professions prior to entering education or who continue to do so once there. For the most part, graduate engineers or officers in the armed forces (usually retired) have been offered temporary contracts to teach science and technical subjects in general education (especially secondary). In France, teachers under contract of this kind accounted for roughly three per cent of science teaching in secondary schools. In higher education the proportion of these people has varied a great deal with employment rules. The latter are traditionally flexible in North America compared with those in France, for example. But no flow statistics by origin are available. For many countries, it is certainly the most disappointing aspect of their recruitment expansion policy. The latter stopped at the point when the authorities concerned felt that the present conditions of employment perhaps had to be thoroughly reviewed in order to make better use of resources in the schools' immediate environment.

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(1) See Table 21, document STP(69)11.

- New role of some forms of recruiting

149. For some time now a number of teachers have been employed to teach some specific subjects for shorter periods than usual and in such a way that legally the person concerned is not permanently bound to the education system. This has also made it easy to replace teachers temporarily absent. The authorities have therefore been able to make use of this method of staffing with wider applications than originally planned. This has been more effective in recruiting women teachers than specialists working in other branches of activity.

150. Unfortunately, nearly all Member countries are unable to give the full-time equivalent for their part-time teachers, with the exception of England and Wales. Since such a policy has been systematically applied there, the real proportion of part-time teaching has risen from 0.6 per cent in 1955 to 4.9 per cent in 1965 in primary education, and from 2.1 per cent in 1955 to 6.1 per cent in 1965 in general secondary. Part-time teachers are very rarely used in primary education. Given the lack of a full-time equivalent, the percentage of part-time teachers can be calculated with relation to the total number of teachers, the percentage thus reflecting the availability of individuals in "physical" terms. In general secondary education, the few available statistics(1) on the whole show that the position tends to be relatively stable in relation to the average percentage, which varies considerably as between countries (from 5 or 10 per cent to 25 or 30 per cent of total teachers). Part-time teachers have always been used more extensively in technical education. Private education has also used these teachers more than its State counterpart. In secondary education the proportion of women teaching part-time has been much higher than for full-time teaching. In England, as a result of the systematic recruiting of married women, these latter accounted for 90 per cent of part-time teachers in 1963. In Sweden, too, there was a higher proportion of women amongst teachers paid by the hour than amongst teachers as a whole (general secondary).

151. Table 28 concerning higher education shows the very great variety of policies adopted by Member countries, but here again the full-time equivalent of part-time teachers is not known. In three countries (Germany, Japan and the United Kingdom) there was a higher proportion of part-time teachers in non-university than in university education. In general, the percentage of part-time teachers (still expressed in "physical" terms) has been greater in higher education than in general secondary. The opposite is true for technical education in Ireland and the United Kingdom (further education).

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(1) See Table 23, document STP(69)11.

152. More statistics are available on the percentage trends for non-established staff. It may be said that the possibilities offered by this form of recruiting have been used to the full, as Table 29 shows. What was an exception, enabling a temporarily absent teacher to be replaced for administrative purposes, has become the rule in some countries. Although national legislation varies as to the conditions for creating permanent posts(1), the percentages given in Table 29 show a rather unhealthy situation for secondary education in Italy and Portugal, for instance.

153. Above a certain percentage, the number of part-time or non-established teachers may indicate the inability of the countries concerned to provide a solid foundation of full-time teachers, which obviously would not prevent the use of other teachers employed in a different administrative context. Here we are very close to the remarks regarding shortage indicators (Chapter II).

(2) Better utilisation of available teachers

154. So as to avoid shortages in one region and a surplus in another, and so that the stock of qualifications should be used to the full, some Member countries have from time to time taken various temporary or even longer term measures.

155. In the short term, countries have tried to optimise the allocation of teachers throughout the country by achieving what amounted to an even spread of shortages. In the longer term, they have developed policies for grouping together schools with few pupils and making better use of teachers specialising in certain subjects in one or more schools(2).

156. It seems, however, that the most important action taken has consisted in helping teachers to go from a given level to the one immediately above. In countries where the hierarchy of various teacher categories is sharply differentiated incentives were not always necessary, the teachers concerned trying of their own accord to leave the level of their assignment. This policy quickly found its limits due to the very fact that the hierarchy was based on great differences in qualifications. Therefore teachers who went to a higher level did not always achieve the most desirable status because they lacked the necessary qualifications. Among the continental European countries, it seems that only the Scandinavian countries have been able to use the available stock of teachers flexibly through more integrated training and systematic further training activities and updating.

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(1) See STP(69)11, Part I, Chapter II(2)(d).

(2) For detailed provisions, see STP(60)11, Part II Chapter IV(1) (b), (c) and (d).

TABLE 29

Trend in percentages of non-established teachers
(public education)

	1950	1955	1960	1965
Primary education				
Luxembourg(1)	6	5	-	3(2)
Switzerland(3)	6(4)	8(5)	10(6)	-
Denmark(7)	-	-	-	8(8)
Portugal	-	-	47	45(9)
Greece	-	-	1(10)	-
Italy(11)	19	12	7	7
General secondary education				
Lower: Italy(11) (as a whole)	73	70	73	73
of which: vocational schools	87	81	83	-
intermediate schools	57	58	60	-
Switzerland:				
of which: secondary schools	-	-	10(6)	-
lower intermediate schools	-	-	35(6)	-
Upper: Denmark	-	-	-	12(12)
Switzerland:				
of which: upper intermediate schools	15(4)	22(5)	35(6)	
business schools	32(4)	21(5)	32(6)	
Italy(11)(as a whole)	53	47	48	55
of which: lycées, gymnasia	42	42	43	41
scientific lycées	60	42	49	59
training colleges	57	56	55	66
General secondary education as a whole:				
Portugal	20	34	56	60(9)
Greece	-	-	8(13)	-
Technical education				
Portugal: Qualified teachers	-	-	78	81(9)
Other teaching staff	-	-	68	75(9)
Italy(11): Short technical course	71	81	84	92
Long technical course	70	66	73	79

(1) Short or long-term contracts.
(2) 1963.
(3) Auxiliaries.
(4) 1951/1952.
(5) 1956/1957.
(6) 1961/1962.
(7) Primary and lower secondary cycle; substitute teachers.
(8) 1966/1967;
(9) 1964/1965.
(10) Temporary (1962).
(11) Non-established.
(12) 1966/1967
(13) 1962; temporary (part-time teachers eliminated for total teaching body).

157. It should however be said that in Sweden in 1966 the tendency of primary school teachers trained for the lower department of comprehensive school to pass into the middle department meant that they accounted for roughly a third of the unqualified teachers in this department. And in the higher department (corresponding to lower secondary education) there was a similar proportion of teachers trained initially for the middle department but who had not received supplementary training.

158. The available statistics(1) show that, traditionally, more teachers "leave" primary education for another type of education than the other way round. A much more lively sort of "competition" has come about in some countries for attracting specialised teachers as between higher and secondary education. University graduates can be kept in higher education as soon as they have received minimal training, or they can move into it from secondary education. The situation in the first half of the sixties in England reflects the consequences of the first possibility; the number of university graduates entering primary and secondary schools was lower than the growth in the total number of graduates had led to suppose. France provides an example of the second phenomenon: the "escape" of "agrégé" teachers in secondary education towards university education in arts and science was such(2) that the authorities concerned had been led to provide some form of allocation of available posts. In the United States, and to a lesser extent in Germany, higher education has been made accessible to secondary teachers.

159. In analysing teacher transfers from one level to another, with few exceptions one gains an impression of "laisser-faire". This has admittedly made it easier to meet requirements stemming from expansion of the various educational levels in turn. But the difficulties of implementing this policy have shown that few countries were prepared to plan for flexible and consistent mobility throughout the range of available qualifications, for here again the traditional concepts of recruitment for different categories of staff would have had to be reconsidered.

160. Another significant example is the use of teachers from another country. Only university education has really used this possibility in North American countries or the United Kingdom. Countries with a rigid Civil Service-type entry structure, accentuated by traditional qualification requirements, deny themselves this possible "lifesaver".

161. Finally, as will be emphasized in the second part of this report, a more decisive long-term policy attacking the broader issue of a more rational use of teachers within a new and efficient education system has very rarely been applied, because this again would have questioned too deeply the present functioning of schools and universities as a whole.

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(1) Tables 76, 77, 78 of document STP(69)11.

(2) See Table 81, STP(69)11.

(3) Improving teacher status

162. Recruitment can also be helped by improving the status of teachers. Career-profiles have been modified, thus offering improvements in starting salaries, and, to a lesser degree, broadening promotion possibilities and creating new functions (head or assistant-head of department or special subject, increase in posts for administrators and pedagogical advisers, etc.). In Europe, Sweden has led the field in this last policy. Elsewhere, these measures, when taken, do not seem to have been part of a thorough reorganisation of teaching.

163. As Study No. 2 emphasizes, a great effort has been made by countries during the period in question to improve teachers' incomes (generally, faster than for other professions). Unfortunately, there is a lack of studies in depth which would make it possible to link these initial data with changes in the detailed breakdown of the teaching profession as a whole, for these measures came up against rigid regulations on salaries (integration into the civil service, uniformity of salary scales whatever the special subject)(1). Moreover, despite their oft-expressed desire to do so, the competent authorities have never gone as far as Yugoslavia, which is trying the experiment of making part of a teacher's salary a function of the effectiveness of his teaching. This would also involve too searching an examination of the way the education system works.

164. In practice it is well-nigh impossible to separate the socio-economic and the professional aspects of the teacher's calling. Modifications in the duration and level of studies in training institutions have increased the prestige of new graduates; these modifications(2) have also had the advantage of paving the way to changes in the very content of initial training, related to reform of the education system. These measures seemed essential in some countries to continue to attract high grade material into primary education and, overall, they are aimed at introducing greater professionalism into teaching as a whole, without finally linking that process, with few exceptions, to any major attempt at innovation. For instance, merely to make teacher training compulsory (and sometimes in practical form only) after specialised university education is not enough to be able to consider the problem of adapting teachers to mass secondary education as solved.

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(1) See STP(69)11, Part II, Chapter III (3).

(2) See Part III of STP(69)11.

165. The fact that larger batches of teachers are now coming from higher education, coupled with the above-mentioned set of measures to improve recruitment, has gradually eased the situation, but it is impossible to say what part each of the measures has played in achieving this improvement. Moreover, we are here concerned with longer-term measures, the effects of which are still difficult to assess.

166. The most important conclusion is that the combination of emergency measures (Chapter II) and longer term policy decisions (Chapter IV B) has in general enabled students and pupils to be supplied with a minimum number of teachers. In fact, in the context of expanding school systems from 1950 to 1965, few countries are found where classes could not be held because a teacher, regardless of his qualifications, could not be appointed. It would, however, be useful to know how such a situation affected the lagging development of certain subjects and streams in secondary education. Moreover, in the context of education in its traditional forms, the real effect of over-using qualified staff or of a considerable increase in unqualified staff on pupils' training and on educational efficiency has not been genuinely and systematically studied. Accordingly, only in terms of quantity can the claim be made that, despite the difficulties of adapting recruitment to demand at various times for different education levels, and despite a policy of recruiting and using teachers which has remained largely traditional, enough teachers were appointed to teach the pupils actually present in the classrooms.

CHAPTER 4

Future demand for teachers

167. The difficulties of adapting the teacher supply to the demand in the period just past suggests that future trends be examined to determine whether Member countries are not threatened by similar problems. During the 10 or 15 years to come teacher demand is thus bound to go on growing and become further diversified. Pre-primary and special education will increase for socio-cultural reasons, upper secondary education will tend to become universal and higher education will continue to expand. Continuing education will also make rapid strides.

168. In the absence of detailed figures showing the actual trend of teacher demand and supply between 1965 and 1970, the growth rates for numbers of pupils (in some cases the corresponding age-groups) and for teachers where numbers are available between 1965 and 1970-1975, will be given for guidance.

169. The few examples in Table 30 compared with the figures for primary education (Table 31) indicate that the demand for primary teachers will increase more rapidly in pre-primary and/or special education than in the primary schools themselves.

170. Tables 31 (primary education) and 32 (general secondary education) show that, as during the recent period, the rate of enrolment in secondary education will be greater(1). The rate would be even higher if statistically the few figures concerning technical education, given on an indicative basis in Table 33, could be better aggregated.

171. Table 34 on higher education, which can be compared with Table 32 (general secondary education) shows that, with the possible exception of France, Austria, Germany and Spain, and only for the years available, the growth rate for student numbers in higher education will be greater than for pupils in general secondary schools. Higher education should develop faster in non-university than in university institutions.

172. The demand for teachers will however not merely depend on increased enrolments. First, the notion that the lower the pupil/classroom or more roughly the pupil/teacher ratio, the more effective education will become, is the premise on which almost all forecasts of teacher requirements are based. This is evident from the tables which have been mentioned. Secondly,

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(1) See Table 94, document STP(69)11.

TABLE 30

EXPECTED GROWTH IN THE NUMBER OF PUPILS AND TEACHERS IN PRE-PRIMARY, SPECIAL AND PRIMARY EDUCATION BETWEEN 1965 AND 1975

		Pre-primary		Special		Primary	
		Pupils	Teachers	Pupils	Teachers	Pupils	Teachers
Germany (1)	1965			100	100	100	100
	1970			123	148	112	117
Canada(2)	1965	100				100	
	1970	122				105	
	1975	142				100	
Denmark (3)	1965			100		100	
	1970			111		98	
	1975			139		105	
	1980			175		115	
Spain (2)	1965		100				100
	1970		118				123
	1975		170				117
France(4)	1965	100	100	-	100(5)	100	100(6)
	1973	148	153	-	284(5)	98	91(6)
Nether- lands (7)	1965	100	100	100	100	100	100
	1970	114	111	136	128	104	124
	1975	144	140	152	145	113	133

Notes : (1) Source of the absolute figures : Study on Teachers "Germany-Belgique-United Kingdom", OECD document, 1969.

(2) Source of the absolute figures : Study on Teachers "Statistical Data", OECD document, 1969.

(3) Source of the absolute figures : Study on Teachers "Denmark-Italie-Luxembourg", OECD document, 1969; special education concerns only establishments for mentally and physically handicapped children; primary education comprises grades 1 to 7.

(4) Source of the absolute figures (a) 1964/65 : "Informations statistiques", service central des statistiques et de la conjoncture, Ministère de l'Education Nationale, except for special education (see (b) below); (b) 1972/73 Rapport général de la Commission de l'Enseignement Scolaire, Universitaire et Sportif (Vth Plan).

(5) All types of special education.

(6) Teachers in special schools (financed by the Ministère de l'Education Nationale) are included in 1965 and excluded in 1973; similarly, teachers not directly in charge of classes are excluded from the 1973 figures.

(7) Source of the absolute figures (a) 1965 : Study on Teachers "Netherlands-Portugal", OECD document, 1968; (b) 1970/75 : Educational Policy and Planning - Netherlands, OECD, Paris 1967 (primary education includes the final classes of primary studies).

TABLE 31

Growth in pupil numbers, population of corresponding age groups, and demand for full-time primary teachers over the next few years
(1965 = 100)

		1965	1970	1975	1980
Pupils and teachers					
United States	Pupils	100	101	94	
	Teachers	100	111	114	
Iceland	Age-group 7-12	100	106	106	
	Pupils	100	107	108	
	Teachers	100	107	107	
Ireland(1)	Pupils	100	98	100	103
	Teachers	100	103	107	
Denmark(2)	Pupils	100	101	110	121
	Teachers	100	109	120	128
Sweden	Age-group 7-12	100	99		
	Pupils	100	95	-	
	Teachers	100	93	-	
Netherlands	Age-group 6-12	100	105	106	106
	Pupils	100	104	105	105
	Teachers	100	108	108	108
Germany	Pupils	100	112		
	Teachers	100	129		
Austria	Pupils	100	124	130	
	Teachers	100	135	144	
France(3)	Age-group 6-10	100	100		
	Pupils	100	83		
	Teachers	100	97		
Turkey	Age-Group 6-11	100	117	134	
	Pupils	100	153	173	
	Teachers	100	170	197	
Spain	Pupils	100	99	101	
	Teachers	100	123	117	
Greece	Age group 6-12	100	102	102	100
	Pupils	100	102	97	96
	Teachers	100	107	118	126
Yugoslavia(4)	Age-group 7-10	100	99	99	
	Pupils	100	102	105	
	Teachers	100	99	98	
Pupils only					
Canada	Pupils	100	105	100	
England and Wales	Age-group 5-10	100	116	129	135
	Pupils	100	116	129	137
Scotland (5)	Age-group 5-11	100	105	102	
	Pupils	100	103	100	
Northern Ireland(6)	Age-group 5-11	100	111	115	
	Pupils	100	106	110	
Italy	Age-group 7-11	100	108	115	
	Pupils	100	107	120	

(1) "National" schools only.
(2) Primary and lower secondary education, teacher demand calculated according to existing standards.
(3) Public education only for 1964/65 and 1972/73.
(4) Estimates for 1965 (first four years of eight-year school).
(5) Not including pupils from two to four years old and including those twelve years old and over.
(6) Excluding pupils under five years old and including those eleven years old and over.

TABLE 32

Compared growth in number of pupils, population of corresponding age groups, and demand for full-time general secondary teachers over the next few years
(1965 = 100)

		1965	1970	1975	1980
Pupils and teachers					
United States(1)	Age-group 14-17	100	112	119	-
	Pupils	100	118	130	-
	Teachers	100	121	132	-
Iceland	Age-group 13-19	100	114	123	-
	Pupils	100	127	135	-
	Teachers	100	126	133	-
Sweden(2)	Age-group 13-18	100	92		-
	Pupils	100	116	-	-
	Teachers	100	123	-	-
Switzerland(3)	Age-group 15-19	100	96	105	-
	Pupils	100	128	154	-
	Teachers	100	127	152	-
Germany	Pupils	100	132	-	-
	Teachers	100	164	-	-
Austria	Age-group 10-17	100	121	139	-
	Pupils	100	121	149	-
	Teachers	100	137	195	-
France(4)	Age-group 11-17	100	98	-	-
	Pupils	100	167	-	-
	Teachers	100	166	-	-
Turkey	Age-group 12-17	100	117	130	-
	Pupils	100	173	193	-
	Teachers	100	220	246	-
Greece(5)	Age-group 12-18	100	102	109	109
	Pupils	100	149	182	185
	Teachers	100	148	-	-
Yugoslavia(6)	Age-group 11-18	100	101	99	-
	Pupils	100	102	112	-
	Teachers	100	96	96	-
Pupils only					
Canada(1)	Pupils	100	121	139	-
Denmark(7)	Pupils	100	151	186	-
Ireland(8)	Pupils	100	118	-	-
England and Wales(9)	Age-group 11-17	100	96	109	123
	Pupils	100	107	140	160
Scotland	Age-group 12-18	100	96	105	-
	Pupils	100	114	140	-
Northern Ireland(10)	Age-group 11-18	100	104	115	-
	Pupils	100	124	151	-
Spain	Age-group 11-17	100	106	110	-
	Pupils	100	147	180	-
Italy(11)	Age-group 12-19	100	98	103	-
	Pupils	100	128	144	-
Netherlands	Age-group 12-18	100	95	-	-
	Pupils	100	112	-	-

Source : Same as Table 2.

(1) General and technical secondary education.

(2) Excluding practical and artistic subjects; covers technical sections in gymnasia and "Fackskola" (Folk schools).

(3) Upper secondary establishments: gymnasia, teachers' and business colleges.

(4) Excluding practical subjects, 1964-65 and 1972-73; covers technical upper secondary schools, the continued present percentage of "agrégé" teachers in the profession is assumed.

(5) 1963 = 100.

(6) Estimates for 1965; including art schools and teachers' colleges (with gymnasia) at upper secondary level.

(7) Gymnasia only (upper secondary level).

(8) Including pupils of future comprehensive schools.

(9) Public only (maintained schools).

(10) Including intermediate technical education.

(11) Including teachers' colleges (with "licei") at upper secondary level.

Table 33

Compared growth in pupil enrolments, population of corresponding age-groups, and demand for full-time technical secondary teachers over the next few years in Germany and Yugoslavia (1965 = 100)

		1965	1970	1975
Pupils only				
Ireland	pupils	100	116	-
Sweden (1)	Age-group 16-18	100	87	-
	pupils	100	107	-
Austria	Age-group 14-19	100	98	116
	pupils	100	133	139
Italy	Age-group 15-19	100	97	100
	pupils	100	177	228
Greece (2)	Age-group 12-18	100	102	109
	pupils	100	127	-
Turkey	pupils	100	161	188
Spain	Age-group 14-17	100	102	112
	pupils	100	146	220
Pupils and teachers				
Germany (3)	pupils	100	105	-
	teachers	100	151	-
Yugoslavia (4)	Age-group 15-18	100	108	102
	pupils	100	121	165
	teachers	100	125	171

Source : Same as Table 2.

Notes : (1) Professional teaching only; courses lasting longer than five months

(2) 1965 : estimates

(3) Professional teaching both half-time and full-time; technical schools and higher technical schools and engineering schools.

(4) 1965 : estimates.

TABLE 34

Estimate of the growth in the number of students, and the corresponding demand for teaching staff.

(1970 - 1975 - 1980)

		University education - except for England and Wales, Canada, USA				Non-university education	
		Students		Teachers		Students	
		Absolute figure	Index	Absolute figure	Index	Absolute figure	Index
Germany (1)	1965	219,700	100				
	1970	195,500	89				
	1975	215,800	98				
	1980	284,800	130				
Austria (2)	1965	48,895	100	5,243	100		
	1970	54,527	112	-	-		
	1975	62,242	127	10,377	198		
Belgium (3)	1965	40,307	100				
	1970	57,000	141				
	1975	75,000	186				
	1980	96,000	238				
Canada (4)	1965	252,500	100			46,600(5)	100(5)
	1970	480,000	190			97,000(5)	208(5)
	1975	670,000	265			130,000(5)	279(5)
Denmark (6)	1965	22,067	100				
	1970	36,600	166				
	1975	53,000	240				
Spain (7)	1966	102,700	100	3,310	100		
	1970	134,800	131	4,514	136		
	1974	151,500	148	5,091	154		
U.S.A. (8)	1965	4,671,000	100	362,000	100	228,000(9)	100(9)
	1970	6,194,000	133	448,000	124	388,000(9)	170(9)
	1975	7,803,000	168	544,000	150	521,000(9)	228(9)
France (10)	1965	413,756	100	18,445	100	175(11)	-
	1972	597,000	144	37,480	203	167,710(11)	-
Ireland (12)	1965	14,147	100				
	1970	-	-				
	1975	24,000	170				
	1980	30,000	212				
Netherlands (13)	1964	58,427	100	21,000(14)	100		
	1970	-	-	-	-		
	1975	-	-	-	-		
	1980	130,000	222	42,000(14)	200		
U.K.: England & Wales (15)	1965	260,000	100				
	1971	437,000	168				
	1976	557,000	214				
	1981	727,000	280				
Sweden (16)	1965	67,452	100				
	1970	135,800	201				
	1975	152,150	224				
	1980	164,600	244				
Switzerland (17)	1965	32,871	100	1,100	100		
	1970	-	-				
	1975	53,000	161	1,910	174		

Notes to Table 34

(1) Source : Higher Education in the Federal Republic of Germany. Problems and Trends (German Academic Exchange Service - May 1966); table 6 (assumption B-1 - German students only) 1960-66 : estimates (university education).

(2) Source : Absolute figures for 1965 : study on the quantitative trend of the teaching body in higher education. Absolute figures for 1970-75 : estimates from tables 98 and 102 of Educational Policy and Planning - Austria, OECD 1968; the number of foreign students has been estimated at 20% of the total number of students enrolled; the requirements for teachers have been established from a student/teacher ratio for 1975 of 1 to 6, a ratio which was achieved in 1959; Austrian and foreign students enrolled in universities, colleges and academies of fine arts; full- and part-time teachers.

(3) Source : Conseil National de la Politique Scientifique - Commission Spéciale : "L'expansion Universitaire".

(4) Source : Enrolment in Schools and Universities 1951/52 to 1970-76 - W.M. Illing, Z.E. Zsigmond (Staff Study No. 20, prepared for the Economic Council of Canada) - Full-time students in university and non-university education (training colleges and technical institutes) in the first column.

(5) Source : Of which non-university education.

(6) Source : Prognosis 1969-75 (September 1969) Undervisningsministeriet, university education.

(7) Source : Requirements for graduate teachers in Spain during the period 1964-71 Mediterranean Regional Project (2nd phase - Madrid 1966, roneotyped document) university faculties only; concerning forecasts even for 1966; the number of teachers is given in full-time equivalent.

(8) Source : Projections of Educational Statistics to 1977/78 - Office of Education, U.S. Department of Health, Education and Welfare; all higher education; the teaching body and the number of students are given in full-time equivalent.

(9) Source : Of which students following professional or general training courses which do not usually allow them to study for a Batchelor's degree or a higher diploma, these courses not lasting more than 3 years after secondary school.

(10) Source : Rapport Général de la Commission de l'Equipement Scolaire, Universitaire et Sportif (Vth Plan 1966-70) faculties (and institutes) only in the first columns (including foreign students).

(11) Source : University institutes of technology (2 years of higher studies); not included in university education.

(12) Source : The Higher Education Authority; first report - 1968/69 (Figure I - tables I and II Annex 4) full-time students, including foreign students in universities and colleges.

(13) Source : Planning and Development in the Netherlands - Volume III No. 1-2, 1969; universities and establishments of equivalent level.

(14) Source : All categories of personnel.

(15) Source : Press notice 5 December 1969, Department of Education and Science, for 1971, 1976, 1981; for 1965 : DAS/EID/68.29.17; concerning full-time students in all types of higher education.

(16) Source : Number of graduates at universities and colleges of higher education and number of persons holding certain degrees - Projections up to 1980 - National Central Bureau of Statistics, Forecasting Information - 1970 : 1. Universities and colleges of higher education (including students without diplomas at the end of secondary school for whom forecasts remain very approximate).

(17) Source : 1965 : students : Message du Conseil Fédéral à l'Assemblée Fédérale concerning aid from the Confederation to the canton universities; estimates of the number of full-time teachers : Le développement des universités suisses (Conseil Suisse de la Science, 1967).
1975 : Rapport de la Commission Fédérale d'experts pour l'étude d'une aide aux universités (1964).
University education (including foreign students).

some countries have wanted to eliminate the effects of the recent period by replacing unqualified teachers, by speeding up recruitment in order to increase teaching efficiency and the teacher force, and by introducing, for example, a permanent core of teachers into technical education. The individual structure of the teaching body in each country moreover creates specific problems of replacement. Apart from improvement of the pupil/teacher ratio, rare indeed are the countries whose demand and supply forecasts supply such details accompanied by an estimate of any imbalances likely to ensue.

173. Those mentioned in connection with forecasts covering recent years(1) have not yet been checked. With the exception of Germany, Austria and Turkey as regards primary education, the greatest shortages were expected in secondary education, especially in science and technical subjects. The earlier trend was hence expected to continue, although to a less marked extent. But the difficulties anticipated by some countries (France, Sweden, England, Wales for example) were resolved more promptly than was at first thought, according to the most recent indications.

174. Judging from the role that an increase in pupil numbers alone can play in determining teacher demand and possible changes in the pupil/teacher ratio, it is clear from a specific O.E.C.D. study(2) that while between now and 1980 the effort required of Member countries will be considerable the obstacles are not insurmountable. Although simple extrapolations are used, the findings - for demographic and other reasons which have already been analysed in studies of pupil and student extrapolations and which accordingly will not be dealt with here - show that the quantitative aspect of staffing in Member countries as a rule will be less of a problem in the future. Moreover, since staff costs are such a large item of current educational expenditure(3) it may be that countries can more particularly direct their efforts towards quality considerations, which are so numerous that each country can certainly choose some corresponding to its individual requirements.

175. The conclusion is that an examination of past, present and possible future imbalances between teacher supply and demand can be of no real value unless dealt with in the more general context of the sweeping changes now taking place or which should shortly occur in educational systems. These changes mean that

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(1) See STP(69)11, Part I, Chapter V.2

(2) See Annex 1 of this paper: "Extrapolations of teacher numbers up to 1980. Methodological explanations".

(3) See Study No. 2.

teachers will have to be recruited who satisfy criteria other than those of a traditional system intended for an élite, who can perform new functions in a competent, dynamic manner and thus enable the educational system to be more efficiently run. Only through such an approach will it be possible to determine whether or not the efforts and policies of many Member countries have really provided the correct answers to the actual problems posed.

PART II

A FEW CONCLUSIONS TO BE DRAWN REGARDING THE "TRAINING - RECRUITMENT - UTILISATION" RELATIONSHIP

176. Educational reforms conducted at various levels in Member countries postulate a change in the role of the teacher, who will now hold the key in creating an educational environment which can promote the pupil's self-development to the utmost extent. The teacher now has access to an increasing store of new educational techniques and methods that he will have to use in performing his new functions. These changes, designed to turn the teacher into one of the main "vectors" of innovation under the educational system, mean that he will have to alter his previous habits and find a new identity(1).

177. The impression gained in regard to some Member countries is that the recent period has been marked, so far as teacher recruitment is concerned, by the following syndrome: (a) relatively low training costs leading to (b) low professional status aggravated by difficult working conditions under an inefficient system, hence to low salaries in turn resulting, particularly for men, in (c) a high departure rate, one apt to be higher than that from any other profession requiring a similar level of education. Although this description cannot be applied indiscriminately to all countries at all times and for all levels of education, it is fairly representative of a situation to which some school authorities have begun to respond.

178. To sum matters up, it is likely that recruitment and maintenance of the best teachers in the profession will be facilitated by the improved career profiles which can result from a redefinition of the teacher's tasks within a renovated educational system. In other words, unlike the general course adopted between 1950 and 1965, it will no longer be possible to make any artificial distinction between the socio-economic and professional aspects of a teacher's status. A rapid examination of teacher utilisation and qualification trends during the recent period should provide some indication as to future policy-making requirements.

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(1) See "Training, recruitment and utilisation of teachers in primary and secondary education - the main trends and their implications", STP(69)15(1st Revision).

CHAPTER I

Utilisation of available teachers

179. In other branches of activity, the ultimate effect of prolonged recruitment difficulties and the increased outlays which are needed to attract and keep qualified staff is that the very conditions under which highly qualified manpower is used end by being revised, and the best combination between capital and labour is sought. Although it is not proposed that education should be likened to industry, the experience of the fifteen years under consideration forces the admission that, in spirit at least, education has done little in the way of promoting the kind of efficiency found in various other sectors of society. Here utilisation of the teacher in the classroom, or better within the entire school establishment, will be dealt with rather than the temporary expedient of more intensive use of available staff. What conclusion can first be drawn from the policies applied? Neither in the recent period nor in the forecasts available does the store of concepts governing educational systems and the role of the teacher seem in actual practice to have changed.

180. Although new teaching techniques and methods tended to break with earlier classroom procedure and the need for better co-ordinated action between the various teacher categories resulted in increased team work, the traditional pupil/classroom ratio (especially teacher/pupil ratio, in the absence of more specific data) remained the prime factor in calculating recruitment requirements.

181. An effort was first made to do away with minor tasks. Faced with recruitment difficulties, after making detailed surveys of the time spent by a teacher on his various duties, some countries (e.g. Sweden, United Kingdom, and United States) entrusted less qualified staff with tasks regarded as of secondary importance when set against the preparation and performance of purely teaching activities. The time available could, moreover, be used by the teacher to improve his own training. But any more rational use of teachers thus achieved, mainly in the classroom or more rarely in the entire establishment, seldom appears on this account to have been linked through the medium of new training methods to a more intensive use of capital, that is, to the use of such technical aids already available or that called for systematic experimentation.

182. Unlike the usual course of events in other branches of activity, recruitment difficulties and financial restrictions failed to promote any systematic development of research activities into ways which might make the operation of the educational system more rational, the results of which could have been systematised during the basic and continued training of teachers.

The use of a number of technical aids may have met the objectives of individualised education sought under the reforms which for several years have been under way in certain Member countries. But the general impression gained in regard to most countries is that new educational methods and techniques were little utilised and were still in the experimental stage. Those cheapest to use and easiest to handle are most often found. They were introduced into educational systems, where methods, content and style were apt to have little evolved. Periods of shortage hence seldom caused capital to be substituted for a type of manpower which was becoming rare and costly. Not having been trained to handle these new techniques, the teacher as yet but dimly perceived the important role that he could play in promoting their wider use(1).

183. It is therefore well to point out the possible consequences of applying a policy in which improvement of the educational service would no longer merely be based on a more than proportional growth of the teacher/pupil ratio.

184. A first obstacle which governments may run up against is that of limited finance. Owing to the share of staff expenditure in the total educational outlay, studies of this item should not be neglected. As school enrolments grow at higher level, under the hierarchy of qualifications as now constituted, more higher-salaried teachers are called upon (in upper secondary and higher education). So far, however, the possible cost of substituting even some small fraction of capital for labour is unfortunately not known.

185. The second limitation that countries may have to face is available manpower. Table 35 shows that staff employed in educational services accounted for one-fifth to one-third of all highly qualified manpower at the beginning of the '60's. To what extent might the educational system, by draining off so many graduates, throw the recruitment of highly qualified manpower off balance among all branches of activity, including education itself?

186. In England, for instance, the last report of the National Advisory Council dealing with teacher training and recruitment stated that by the 1980s the educational system (including higher education) would have to siphon off some 50 per cent of the yearly flow of graduates, if it was to function properly. In 1965 it was found that the intake by higher education had made it more difficult to recruit specialists for business as well as teachers for secondary education. In Sweden at this same period various commissions after analysing the long-term

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(1) See Background Study No. 7: "Educational technology - practical issues and implications".

TABLE 35

Percentage of highly qualified manpower(1) in educational services

	Percentage total HQM (2)	Percentage total HQM(2) in services	Percentage teachers of total HQM(2) in educational services
Belgium (1961)	33.4	51.4	94.5
Canada (1961)	19.8	35.3	-
Denmark (1960)	23.3	30.8	92.8
France (1962)	20.3	36.6	-
Great Britain (1961)	19.8	33.7	92.7
Ireland (1961)	29.3	36.7	-
Japan (1960)	25.7	41.0	97.1
Netherlands (1960)	22.7	36.9	-
Norway (1960)	20.9	33.3	96.4
Sweden (1960)	18.0	35.2	94.2
United States (1960)	18.3	38.0	78.6

Source: Statistics of the Occupational and Educational Structure of the Labour Force in 53 countries, O.E.C.D., Paris, 1969.

Notes: (1) Occupational Groups 0 (professional, technical and related workers) and 1 (administrative, executive and managerial workers).

(2) HQM = Highly qualified manpower.

prospects for highly qualified manpower even suggested a lower rate of growth for the educational system. In France it was estimated that when the Fifth Plan (1966-1970) came along the recruitment of teachers (not including those for higher education) might account for 40 per cent of graduates. If the assumptions of the Mediterranean Regional Project report on Italy on how to meet teacher requirements fully had been accepted, education would have absorbed 83.5 per cent of graduates. Nor is the case of Italy an isolated one. It was thus estimated that from 1965 to 1967 Yugoslavian secondary schools would have to recruit 80.7 per cent of those graduating from faculties of natural sciences and technology.

187. Owing to the state of research into manpower needs, and in view of the inefficiency and lack of democratisation which mark many training institutes, no conclusions can at present be drawn concerning this problem, one which affects every leading branch of a country's activity. It can only be hoped that such questions will be investigated more thoroughly.

188. Even without attempting any direct answer to the problems caused by limited financial and manpower resources, should not an educational system, if it is to have the dynamic and innovating qualities many authorities desire, increase its effectiveness by an optimal combination of the teacher's labour with the new techniques and methods which are now available? Why might this not be based on a better division of labour both in the schools and outside?

189. During recent years little progress appears to have been made in such matters, and the danger which now threatens in the face of improved recruitment conditions is that some countries may lose sight of these problems, despite any misgivings they may have due to the difficulties of applying proposed reforms and the growing cost of improving the quality of education.

CHAPTER 2

Recruitment and qualifications required

190. When it is seen how the matter of qualifications was approached during the earlier period, it will be realised that a policy based on the close relationship of "training, recruitment and utilisation" was utterly lacking. Regulations regarding qualifications were earlier mentioned as a factor which certainly hampered the full-time or part-time use of specialists recruited outside education. Insofar as the educational reforms recommended that teachers capable of "detecting" aptitudes, of serving as group leaders and advisers familiar with the school environment be increasingly used, the school authorities may well on this account have deprived themselves of the services of people who, owing to wide social experience, possessed just these qualities. If the percentage of "unqualified" teachers is taken as a factor, clearly the shortage was even higher than at first appears when set against the qualification criteria which the teacher should have as a result of the fundamental educational reforms which were then being or were about to be introduced.

191. While the educational reforms which were thus beginning implied that teaching qualities be broadened and intensified, this part of teacher training was usually cut back if not eliminated altogether. Since their only thought was the speedy solution of quantitative problems, the school authorities failed to seize the opportunity - which the need to recruit a great many, mainly young, teachers provided - of radically reforming initial teacher training. Many more teachers than before were therefore to remain part of an educational system which was necessarily changing. Difficulties may ensue if mass education is promoted by using teachers trained to educate an élite. So far, especially in secondary education, teachers have been recruited much more for their academic qualities than for any teaching ability matching their new educational role.

192. Only the systematic promotion of refresher courses could have improved some types of training now universally regarded as essentially unsuitable. With few exceptions, continuing education schemes have merely served to compensate for the inadequate training of teachers recruited without having gone through the traditional channels leading to an officially recognised certificate. Continuing education seems all the more a priority requirement as the strong pressure exerted by demand on a system still based on traditional concepts has had (depending on the period, country and type of training required) the effect of:

(a) delaying any changes to teacher training requiring a longer period of instruction (as for primary teachers in most countries, or as regards the provision of courses in theoretical and/or practical pedagogics, in addition to the specialised training for secondary teachers);

(b) shortening the training period and introducing accelerated courses;

(c) abolishing various aptitude tests on admission to training institutes or of facilitating the appointment of only partly trained candidates to permanent posts (generally without pedagogical training in secondary education).

193. The promotion of continuing education, by testing and developing new models for training, was all the more urgent as the qualifications so far obtained by the teacher usually prevented him from applying new techniques, from continually re-assessing his teaching, re-appraising methods and curricula and re-interpreting his role in the educational process. Clearly, in spirit as well as content, continuing education would have to follow the pattern of new indoctrination programmes which were introduced.

194. In the summing up, it is to be hoped that national authorities will encourage continuing education throughout the teacher's career. The initial cost will be higher, but by raising the social and salary status of teaching staff such continued training will help to keep greater numbers in the profession over a longer time and to promote a more effective educational system, resulting in a lower cost for each of the "educational units" offered to the population as a whole.

General conclusion

195. It is well here to repeat that the various tendencies uncovered in this study do not systematically apply to all countries. But since no vast amount of information was available certain reservations could not be made. Nor could higher education be dealt with in such great detail as primary or secondary education. As between the various educational levels recruitment difficulties appear to have differed in degree rather than kind.

196. It is at the level where the quality and quantity aspects intersect - teacher recruitment - that the greatest trouble arose during most of the period under review, precisely because these aspects failed to be integrated in the planning of educational growth. Whenever sweeping changes were proposed for one or more educational levels, very rarely was the decision to alter the content and structure of education accompanied by measures to reform the teacher's basic and continued training.

197. Unfortunately it has been impossible to assess the effects on pupils that teacher shortages are likely to have had. During the first part of the period shortages seemed inevitable owing to the combined impact of factors which increased the demand and reduced the supply. But when the countries which were able attempted to introduce longer term policies, a striking fact is how lacking in boldness and co-ordination these were, and how far they failed to come to grips with the real problem.

ANNEX(1)

Extrapolations of teaching staff numbers up to 1980

Notes on methods used

This Annex gives extrapolations of teaching staff numbers for 20 countries up to 1980 in primary (including pre-primary), secondary (all types) and higher education.

I. Basic data

The extrapolations are based partly on the data contained in studies on teachers(2) and partly on those in studies on the extrapolation of student and pupil numbers(3).

The poor quality of the statistical data on teachers was stressed in Study No. 3, which provided concrete examples of the difficulties encountered.

Pupils have been grouped into three broad levels: pre-primary and primary; secondary, no distinction being made between general and technical; and higher, university or non-university.

Discrepancies in the data contained in the various studies on teachers and pupils slowed up the work considerably.

II. Working procedure

A. Starting from statistics on teachers and the corresponding numbers given in "studies" on teachers, the pupil/teacher ratios were calculated for different levels by aggregating the pre-primary and primary, the various types of secondary education (short or long, general or technical), and, finally, where it was possible to do so, university and non-university education. No distinction was made between full- and part-time pupils or teachers. These ratios were worked out for 1950, 1955, 1960, 1965 (or the years nearest to those dates).

B. The number of pupils taken into account in the studies on teachers were compared with those given in the studies on students and pupils. With regard to primary education (as defined here)

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(1) Study prepared by Monique Solliliage and Randolph Quenum.

(2) See studies referred to in paragraph 8 of this report.

(3) See Annex III, Background Study No. 1. "Educational Expansion in O.E.C.D. Countries since 1950" [STP(70)6]7.

the discrepancies between studies were generally very slight and never exceeded 15 per cent for any country. However, in secondary education the discrepancies exceeded 30 per cent for the Netherlands, and were as high as 50 per cent or more for Austria, Belgium and Luxembourg, because in those cases the studies on teachers did not cover technical education. Similarly, for higher education numbers vary from one study to another according to whether or not non-university higher education is included. Discrepancies were more than 25 per cent for Yugoslavia, Turkey and Norway, and 50 per cent for the United Kingdom, Belgium and the Netherlands.

C. Despite these discrepancies between the numbers used to establish pupil/teacher ratios and the total numbers, it was decided, for want of a better alternative, to apply these ratios to the total number of pupils at various levels in order to calculate the total number of teachers in 1965.

III. Assumptions about pupil/teacher ratios in 1980

These assumptions vary according to the educational level in question.

(a) Primary education. As was said in section I, statistics for this level can be regarded as satisfactory. Moreover, the pupil/teacher ratio diminished in all countries between 1950 and 1965. It was therefore assumed that this ratio would develop as follows between 1965 and 1980:

Assumption 1: no change;

Assumption 2: sharp drop (from six to ten pupils fewer per teacher);

Assumption 3: slight decline (from one to five pupils fewer per teacher).

In countries where the ratio was lower than 25, only one assumption was made: that the ratio would be down to 20 by 1980. In countries where it was lower than 20 it was assumed that it would be 15.

(b) Secondary and higher education. Unlike primary education, and for the reasons given in sections I and II, the pupil/teacher ratios are hardly comparable with each other and cover very different types and kinds of education. Moreover, no clear tendency emerges from trends between 1950 and 1965. For 1980 very simple assumptions have therefore been adopted:

Assumption 1: same ratio as for 1965;

Assumption 2: lowest recorded ratio for the period;

Assumption 3: highest recorded ratio for the period.

IV. Teacher numbers by 1980

Pupil/teacher ratios as defined in section III were applied to pupil and student numbers extrapolated to 1980. In order not to complicate the study and calculate nine different figures for each country, it was decided to base estimates of total numbers on the middle assumption.

Results of calculations

What follows is an analysis of the results for each level of education.

Primary education

Table 1 shows, first, pupil/teacher ratios for the past (in 1965 and for the year when this ratio was highest - the date varies from country to country) and for 1980 according to the three assumptions adopted; and, second, teaching staff numbers. For 1965 two figures are given (one calculated on the basis of total pupil numbers corresponding to the number of teachers taken into account in the studies on teachers, and the other on the total numbers given in the study on extrapolations of numbers of pupils. For 1980 the figures corresponding to the three assumptions are given.

Under assumption 1 (that by 1980 the pupil/teacher ratio will be the same as in 1965), there will be a decline in the number of teachers in Belgium, France, Greece, Japan and Norway and a slight increase in Denmark, Germany, Ireland, Italy, Portugal, Spain and the United Kingdom. However, the demand for teachers will be high in Sweden and Yugoslavia and especially Turkey, where the number of teachers should double. It seems therefore that in primary education in most countries between 1965 and 1980 there should be a decline in the number of pupils per teacher. This improvement should not create serious problems, however, as is shown in Table 2, which compares the annual growth rates in total numbers of teachers between 1950 and 1965 (calculated on the basis of actual numbers) and in 1965-1980 (calculated on the basis of total numbers) under the three assumptions adopted. If the rates for 1965-1980 stay the same as those observed between 1950 and 1965, the pupil/teacher ratio will decline more or less steeply in all countries except Austria, Ireland and Sweden.

Secondary education

Table 3 shows the pupil/teacher ratios observed between 1950 and 1965, (which were used, as mentioned above, to extrapolate teacher numbers in 1980); and teacher numbers in 1980 compared with those for 1965 (actual and recalculated on the basis of the total number of pupils). Countries where the

difference is relatively slight between the number of teachers actually recorded and the number calculated on the basis of total numbers of pupils, have been given in the upper part of the table, the others in the lower part. For the United States and Sweden, because of the differences in the classifications used in the basic studies, the figures are given for secondary education only and for secondary and primary. According to the results given in this table, and whatever the assumption adopted for the pupil/teacher ratio, all countries (except Japan and Denmark with regard to the least favourable assumptions) face increases in teaching staffs between 1965 and 1980 - in some cases very steep increases. To see how the effort which will be demanded of countries compares with that made between 1950 and 1965, the annual growth rates of teacher numbers have been calculated for the two periods in question. These rates are given in Table 4. Under assumption 1 (pupil/teacher ratios in 1980 similar to 1965) the annual growth rate of the number of teachers in all countries (except Germany if Berufschulen are excluded, Austria and Turkey) would be lower between 1965 and 1980 than between 1950 and 1965. The situation is the same under assumption 2 (pupil/teacher ratio lower than 1950 to 1965) except for Luxembourg and Spain. It therefore seems that in the years to come teacher requirements will be on the whole smaller than those that countries have had to meet from 1950 to 1965.

Higher education

The presentation of the statistics is the same as that adopted for secondary education. Table 5 shows the pupil/teacher ratios and the corresponding numbers of teachers, a distinction being made between countries for which basic information was relatively comparable and those where it was not. Table 6 gives the annual growth rates in the number of teachers (pupil/teacher ratio unchanged). According to Table 5, taking the first assumption, staff numbers should increase in all countries between 1965 and 1980, sometimes very considerably. Numbers should multiply by five in Greece, by four in Yugoslavia and Canada, and by 2.5 approximately in Germany, Austria, Spain, United States, Ireland, Italy, Belgium, France and Norway. On the other hand, comparing annual growth rates with those between 1950 and 1965 (Table 6), still under the assumptions stated, it is clear that these will be smaller annually than over the past period, except in Germany, Ireland, Italy, Spain, Yugoslavia and especially Greece.

TABLE 1

Trends in pupil/teacher ratios and teacher numbers in primary education

Country	Pupil/teacher ratios				Numbers of teachers (in thousands)				
	Highest recorded between 1950-60	Assumptions for 1980			1965		1980		
		Ratio in 1965 (1)	Steep decline (2)	Slight decline (3)	Based on actual numbers	Based on total numbers of pupils	Under Assumption 1	Under Assumption 2	Under Assumption 3
Austria	24.5	22.0	-	20	37.6	39.5	53.1	-	58.4
Belgium	27.4	25.0	-	20	58.5	57.3	55.9	-	69.9
Canada(a)	27.5	24.0	-	20	210.1	210.1	272.5	-	327.1
Denmark(a)	27.2	17.5	-	15	39.9	48.5	56.0	-	65.3
France	33.7	31.0	25	30	241.1	235.5	216.6	268.6	223.8
Germany	35.7	33.0	25	30	168.2	169.9	187.9	248.1	206.7
Greece	48.6	37.0	30	35	28.1	27.1	25.5	31.4	26.9
Ireland	35.1	34.0	25	30	15.0	14.6	17.5	23.8	19.8
Italy	30.0	24.0	-	20	244.9	244.0	272.4	-	326.9
Japan	36.0	27.0	20	25	397.7	404.2	363.9	491.2	393.0
Luxembourg	28.4	27.0	20	25	1.5	1.6	2.0	2.8	2.2
Netherlands	35.5	32.0	25	30	58.8	58.1	75.9	97.2	81.0
Norway	28.7	27.0	20	25	16.1	15.3	15.2	20.5	16.4
Portugal	42.7	32.0	25	30	28.2	28.3	34.2	43.7	36.4
Spain	37.7	35.0	25	30	113.5	103.5	109.5	153.3	127.8
Sweden	23.4	18.0	-	15	40.9	48.8	76.8	-	92.2
Turkey	47.0	47.0	40	45	84.4	83.5	163.6	192.3	170.9
United Kingdom	30.5	26.0	20	25	206.1	206.0	248.9	323.6	258.8
United States	33.2	28.0	20	25	1,120.0	1,316.1	1,601.8	2,242.4	1,794.0
Yugoslavia	38.4	27.0	20	25	115.5	110.5	150.9	203.7	163.0

(a) Primary and secondary.

TABLE 2

Annual growth rates in numbers of teachers in primary education between 1950-1965 and 1965-1980

Country	Annual growth rates in numbers of teachers			
	1950-1965	1965-1980		
		Assumption 1	Assumption 2	Assumption 3
Austria	- 0.1	2.0	-	2.6
Belgium	2.3	- 0.2	-	1.3
Canada(a)	5.7	1.8	-	3.0
Denmark(a)	4.5	1.0	-	2.0
France	2.5	- 0.6	0.9	- 0.3
Germany	3.2	1.0	2.6	1.3
Greece	3.3	- 0.4	1.0	0
Ireland	0.8	1.2	3.3	2.1
Italy	1.6	0.7	-	2.0
Japan	1.5	- 0.7	1.3	- 0.2
Luxembourg	1.8	1.5	3.8	2.1
Netherlands	2.1	1.8	3.5	2.3
Norway	2.3	0	2.0	0.5
Portugal	4.6(b)	1.3	2.9	1.7
Spain	2.4	0.4	2.7	1.4
Sweden	1.4	3.1	-	3.1
Turkey	5.9	4.6	5.7	4.9
United Kingdom	1.6	1.3	3.1	1.5
United States	3.3	1.3	3.6	2.1
Yugoslavia	4.2(b)	2.1	4.2	2.6

(a) Primary and secondary.

(b) Not including pre-primary.

TABLE 5

Pupil/teacher ratios and numbers of teachers in secondary education

Country	Pupil/teacher ratios by 1980			Teacher numbers				
				1965		1980		
	1965 (1)	Lowest recorded 1950-65 (2)	Highest recorded 1950-65 (3)	Based on actual numbers	Based on total numbers of pupils	Under Assumption 1	Under Assumption 2	Under Assumption 3
Germany(a)	19.1/29.7	18.5/29.4	19.1/29.7	92.9/119.8	93.3/120.0	167.7/179.7	173.1/181.6	167.7/179.7
Spain	23.0	17.1	23.0	47.4	48.2	99.2	133.4	99.2
United States								
- secondary only	20.4	17.5	21.4	823.0	637.0	961.2	1,120.5	916.2
- primary and secondary	25.1	25.1	27.6	1,943.0	1,986.1	2,568.0	2,568.0	2,335.4
France	15.9	15.6	15.9	209.8	204.3	305.2	311.1	305.2
Greece	22.7 ,	22.7	25.2	15.0(b)	14.4(b)	32.9	32.9	29.7
Ireland	17.9	17.9	21.7	11.4	12.2	16.9	16.9	14.0
Italy	10.5	8.9	10.6	256.2	291.4	591.0	697.3	585.5
Japan	23.3	23.3	25.2	472.8	473.8	389.9	389.9	360.5
Luxembourg	16.2	13.7	16.3	0.6(c)	0.7	1.1	1.3	1.1
Norway	12.8	8.7	13.4	17.0	19.4	25.9	38.2	24.8
Portugal	20.5	20.0	20.5	14.1	15.4	31.9	32.7	31.9
United Kingdom	16.4	16.4	19.9	221.3	210.4	351.0	351.0	289.3
Sweden								
- secondary only	16.9	16.9	20.0	23.4	16.7	22.2	22.2	18.8
- primary and secondary	16.8	16.8	20.0	79.3	68.4	104.6	104.6	87.9
Turkey	22.7	12.4	22.7	29.4	32.1	93.8	171.7	93.8
Yugoslavia	20.9	20.6	20.9	30.9	29.4	58.9	59.8	58.9
Canada(d)	24.4	24.4	27.5	210.1	210.1	268.1	268.1	237.9
Denmark(d)	17.5	17.5	27.2	39.9	48.5	56.0	56.0	36.0
Austria	10.4	10.4	12.8	14.3	28.2	50.6	50.6	41.1
Belgium	14.1(b)	12.6	14.1	18.9(e)	45.5	69.1	77.3	69.1
Netherlands	15.1(b)	13.5	15.1	44.7(b)	72.8	112.8	126.2	112.8

(a) The first figure refers to secondary education excluding Berufschulen; the second includes these schools, in which the numbers (declining) have been estimated at 40 per cent of the total in 1980.

(b) 1960. (c) Not including technical. (d) Primary and secondary. (e) Not including technical - 1959.

TABLE 4

Annual growth rates in numbers of teachers in secondary education between 1950-1965 and 1965-1980

Country	Annual growth rates in numbers of teachers			
	1950-1965	1965-1980		
		Assumption 1	Assumption 2	Assumption 3
Austria	3.9	4.0	4.0	2.5
Belgium	5.6(c)	2.8	3.6	2.8
Canada(d)	5.7	1.6	1.6	0.8
Denmark(d)	4.5	1.0	1.0	- 2.0
France	10.1	2.7	2.8	2.7
Germany(a)	3.2(b)/2.8(b)	4.0/2.7	4.2/2.8	4.0/2.8
Greece	8.1(f)	5.7	5.7	5.0
Ireland	4.3	2.2	2.2	0.9
Italy	6.1	5.0	6.0	4.7
Japan	3.6	- 1.3	- 1.3	- 1.8
Luxembourg	3.7	3.1	4.2	3.1
Netherlands	6.0(g)	3.0	3.7	3.0
Norway	6.8	2.0	4.6	1.7
Portugal	12.3	5.0	5.2	5.0
Spain	6.7(e)	4.9	7.1	4.9
Sweden	-	1.9/2.9(d)	1.9/2.9(d)	0.8/1.7(d)
Turkey	7.3	7.4	11.8	7.4
United Kingdom	4.4	3.5	3.5	2.1
United States	5.2/4.0(d)	2.8/1.7(d)	2.8/1.7(d)	2.5/1.1(d)
Yugoslavia	8.4(h)	4.7	4.9	4.7

(a) The first figure excludes the "Berufschulen", the second includes them.

(b) 1961-1965.

(c) 1950-1959.

(d) Primary and secondary.

(e) 1955-1965.

(f) 1960-1966.

(g) 1950-1960 (the rate was 5.0 per cent for general education from 1950 to 1965).

(h) 1959-1965.

TABLE 5

Pupil/teacher ratios and number of teachers in higher education

Country	Pupil/teacher ratios by 1980			Number of teachers				
				1965			1980	
	1965 (1)	Lowest recorded 1950-1965 (2)	Highest recorded 1950-65 (3)	Based on actual numbers	Based on total numbers of pupils	Under Assumption 1	Under Assumption 2	Under Assumption 3
Austria	9.3	5.9	10.4	5.2	5.2	13.2	20.8	11.8
Denmark	7.9	7.9	9.6	6.6	6.6	10.8	10.8	8.9
Germany	10.7	10.7	12.4	31.8	34.4	95.1	95.1	82.1
Greece	48.7	23.2	48.7	1.2	1.3	3.0	3.4	2.9
Ireland	12.7	11.0	13.2	1.1	1.3	6.8	14.3	6.8
Italy	12.0	10.2	15.8	32.9	33.7	80.1	94.2	60.8
Japan	10.1	9.1	10.1	105.7	107.4	176.6	196.0	176.6
Portugal	16.4	13.4	16.4	2.1	2.2	2.6	3.2	2.6
Spain	21.7	13.0	21.7	5.8	7.2	16.6	27.7	16.6
Sweden	13.3	-	-	5.3	5.8	10.7	-	-
United States	12.9	11.8	12.9	432.0	431.8	929.6	1,016.3	929.6
Yugoslavia	11.7	11.3	13.6	15.8	15.8	64.6	66.9	55.6
Belgium	7.7	7.7	10.3	5.2	11.0	28.4	28.4	21.3
Canada	13.0	13.0	15.7	11.7	25.1	100.9	100.9	83.6
France	21.0	21.0	32.9	18.7	24.9	59.2	59.2	37.8
Netherlands	21.4(a)	20.6	26.6	1.6(a)	5.8	7.7	9.5	7.3
Norway	9.8	5.9	9.8	2.0	2.9	7.4	12.2	7.4
Turkey	14.2	12.7	15.5	4.6	6.9	11.5	12.8	10.5
United Kingdom	8.1	8.1	8.7	17.6	53.3	100.7	100.7	93.8

(a) 1958.

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Corr.

TABLE 6

Annual growth rates in numbers of teachers in higher education between 1950-1965 and 1965-1980

Country	Annual growth rates in number of teachers			
	Between 1950-1965	Between 1965-1980		
		Assumption 1	Assumption 2	Assumption 3
Austria	6.8	6.4	9.7	5.6
Belgium	8.2	6.5	6.5	4.5
Canada	11.4	9.7	9.7	8.4
Denmark	12.6(b)	3.3	3.3	2.0
France	17.0(d)	5.9	5.9	2.8
Germany	2.8(a)	7.0	7.0	6.0
Greece	3.4(c)	11.7	17.4	11.7
Ireland	3.6	5.7	6.6	5.5
Italy	5.7	5.9	7.1	4.0
Japan	10.5	3.4	4.1	3.4
Netherlands	4.9(f)	1.9	3.3	1.5
Norway	8.3(e)	6.5	10.0	6.5
Portugal	4.8(g)	1.1	2.5	1.1
Spain	2.4	5.7	9.4	5.7
Sweden	-	4.2	-	-
Turkey	6.3	3.5	4.2	2.8
United Kingdom	5.9(h)	4.3	4.3	3.8
United States	6.6(c)	5.3	5.9	5.3
Yugoslavia	7.6	9.8	10.1	8.7

(a) 1961-1965.

(b) 1956-1966.

(c) 1955-1965.

(d) 1957-1964.

(e) 1956-1965.

(f) 1950-1958.

(g) 1957-1965.

(h) 1955-1964.